BRITISH MEDICAL JOURNAL

LONDON SATURDAY JUNE 12 1937

AN OUTBREAK OF MILK-BORNE SCARLET FEVER AND TONSILLITIS IN DONCASTER

BY

R. WATSON, M.A., M.B., D.P.H.

Medical Officer of Health, Doncaster County Borough

Many outbreaks of tonsillitis and scarlet fever due to the drinking of infected milk have been reported, but the outbreak which occurred in Doncaster in December, 1936, had several points of interest which appear to make it worth while adding to the literature on the subject. The outbreak was a comparatively small one, extending over a period of not more than twelve days from December 9 to December 20 inclusive, and as the infected milk, amounting to about fifty gallons a day, all came from one farm and was distributed by one retailer unmixed with milk from other sources, investigation was made comparatively simple. The number of cases affected, however, is large enough to warrant certain conclusions being drawn.

Source of Infection

The first cases came to my notice about midday on December 11, and by the evening of that day fifteen cases of scarlet fever had been notified, all in the same part of the town. Suspicion fell on a certain milk supply, and arrangements were made for four samples of this milk to be taken for bacteriological examination that afternoon. Later in the day sufficient evidence had been collected to warrant a notice being issued under the Milk and Dairies Acts and Orders prohibiting the sale of this milk for human consumption for a period of twenty-four hours.

The farm from which the supply came was situated in the Doncaster rural district administrative area, and, together with Dr. Penman, the medical officer of health for the rural district, I visited this farm on the morning of the next day, December 12. Here the only thing to be discovered was that one of the milkers had a sore throat which, he stated, he had had "for about a week." During the morning a report was received to the effect that the four samples of milk taken the previous afternoon had been plate-cultured and had all proved to be negative for haemolytic streptococci; however, no animal inoculations had been carried out. It was accordingly considered that if the milker was removed from duty the milking utensils properly sterilized, and milking carried out under supervision, the milk could be released as from the morning of the next day, Sunday, December 13. As a precaution the retailer undertook to advise his customers to boil the milk, and this advice was also given by the local press and by house-to-house visits by the health visitors. This was done until it was possible to complete arrangements for the pasteurization of the whole supply. Pasteurization became effective as from midday on December 15, and the milk when not pasteurized was then used for other purposes and not distributed direct to consumers.

Bacteriological Investigations

In the meantime it had been found that the milker suspended from duty had a child who had been suffering from otorrhoea since December 2, and that he had been dressing the ear. On December 14 arrangements were made with Dr. Griffith of the Ministry of Health Laboratory for the typing of the haemolytic streptococci which had been found to be present in the discharge from this child's ear, and in swabs taken from the throats of the milker and several of the patients who had been admitted to the isolation hospital. On December 15 the cows forming the herd supplying the infected milk were examined by the chief veterinary officer of the West Riding County Council, Major D. S. Rabagliati, and group samples were submitted to Dr. Griffith for examination. The only clinical abnormality discovered in the herd was that one of the cows was suffering from an induration of one teat, the condition being diagnosed as a "crushed teat." It was stated to have been crushed by a tread about a fortnight previously. There was no external lesion.

Dr. Griffith was able to isolate *Streptococcus pyogenes*, Type II, from the child's ear, from the throat of the milker, from the throats of all the patients from whom swabs were submitted for examination, and from the milk secreted by the cow with the "crushed teat." This cow eventually developed an acute mastitis in the two forequarters of the udder. She was isolated for further observation by Dr. F. C. Minett of the Research Institute of the Royal Veterinary College, London, and he informs me that she continued to excrete *Streptococcus pyogenes*, Type II, for several weeks. The chain of evidence as to the source of the outbreak was therefore definitely established. It is of interest to note that a sample of the milk taken from bulk on December 14 failed to show the presence of haemolytic streptococci on plate culture, and that the retailer himself failed to show the presence of Type II organisms at this period, although his throat swab repeatedly gave heavy growths of haemolytic streptococci of a different type.

Age and Sex Distribution

In considering the effects of the outbreak it should be noted that the figures given in this account refer only to those cases occurring in the borough of Doncaster.

Only a few cases associated with the milk supply were notified in the rural district area, and these do not materially affect the total figures.

Very early in the outbreak it was noticed that many patients had only tonsillitis with no signs of a rash. In an attempt to obtain a complete picture of the effect of the mass infection I have recently completed an investigation of all the families known to be taking the milk during the period in which it was infected. The results of this inquiry are shown in the following tables and charts.

The milk was delivered by the retailer to 380 families in Doncaster, and of these 205 families (54 per cent.) were affected to a greater or less degree, the infection being fairly equally distributed over the whole area of supply. The 380 families contained 1,343 persons and were made up as follows: children aged 0 to 4 years, 62; children aged 5 to 14 years, 218; persons aged 15 years and over, 1,063. The number of persons attacked and the attack rates are shown in Table I.

TABLE I.—*The Number of Persons Attacked and the Attack Rates in Varying Age Groups*

Age Group (Years)	No. of Persons at Risk	Cases of Scarlet Fever	Cases of Sore Throat	Total Cases Affected
0–4	62	26 (41.9%)	8 (11.3%)	34 (53.2%)
5–14	218	53 (23.9%)	37 (16.9%)	90 (40.8%)
15 and over	1,063	56 (5.3%)	184 (17.4%)	240 (22.7%)
Totals..	1,343	135 (10.0%)	229 (17.0%)	364 (27.1%)

These figures are interesting as they show how, with presumably the same infecting organism, the incidence of a rash symptomatic of scarlet fever appears to vary according to the age of the person attacked. Having regard to the number at risk in the different age groups, they also seem to indicate how much more children are affected than adults, especially children under 5 years of age. They also bear out findings collected by Professor Picken (1936) to the effect that in a milk outbreak adults may form a large proportion of the total cases suffering from clinical scarlet fever. The distribution of cases, of both scarlet fever and sore throat, according to age and sex is shown in Table II. For comparison with the scarlet fever group the distribution of these cases for the years 1935 and 1936 (excluding those cases associated with the milk outbreak) is appended (Table III). These latter figures should form a fair basis of comparison, as they do not include any cases which were associated with a milk-borne epidemic.

So far as cases of clinical scarlet fever were concerned in the milk outbreak the percentage of the total cases occurring among adult males was nearly four times the normal expectation. Among adult females the percentage was about twice the normal. Children of school age in proportion showed a lower percentage incidence than the normal rates would lead one to expect. The effect of the outbreak must, however, be judged on the total number of cases of tonsillitis and scarlet fever, for which, unfortunately, no comparison with the normal expectation is possible. From the figures in Table II it will be seen that among males 51.6 per cent. of the total cases of scarlet fever and tonsillitis were adults, and for the adult females this figure was 62.3 per cent. The only comparable figures are those respecting the Chelmsford outbreak, to which the Doncaster figures approximate fairly closely. It is of interest to know that both the Chelmsford and the Doncaster outbreaks were caused by a Type II haemolytic streptococcal infection of milk. No evidence has been forthcoming to account for the high percentage of the adults attacked; possibly this might be due to a previous absence of Type II infection in the areas.

TABLE II.—*Cases of Scarlet Fever and Sore Throat due to Infected Milk; Age and Sex Distribution (December, 1936)*

Age Group (Years)	Scarlet Fever Cases			Sore Throat Cases			Total Cases Attacked		
	Males	Females	Total	Males	Females	Total	Males	Females	Total
0–4	16 (26.2%)	10 (13.5%)	26 (19.2%)	4 (4.2%)	4 (3.0%)	8 (3.5%)	20 (12.7%)	14 (6.7%)	34 (9.3%)
5–9	13 (21.3%)	20 (27.0%)	33 (24.4%)	8 (8.4%)	7 (5.2%)	15 (6.5%)	21 (13.4%)	27 (13.0%)	48 (13.3%)
10–14	10 (16.4%)	10 (13.5%)	20 (14.9%)	11 (11.4%)	11 (8.4%)	22 (9.6%)	21 (13.4%)	21 (10.3%)	42 (11.5%)
15–19	3 (5.0%)	9 (12.1%)	12 (8.9%)	11 (11.4%)	7 (5.2%)	18 (7.9%)	14 (8.9%)	16 (7.7%)	30 (8.2%)
20 and over	19 (31.1%)	25 (33.9%)	44 (32.6%)	62 (64.6%)	104 (78.2%)	166 (72.5%)	81 (51.6%)	129 (62.3%)	210 (57.7%)
Totals ..	61 (100%)	74 (100%)	135 (100%)	96 (100%)	133 (100%)	229 (100%)	157 (100%)	207 (100%)	364 (100%)

TABLE III.—*Cases of Scarlet Fever in Doncaster other than those due to Infected Milk (1935 and 1936)*

Age Group (Years)	Male	Female	Total
0–4	36 (21.8%)	27 (13.4%)	63 (17.2%)
5–9	61 (36.9%)	84 (41.6%)	145 (39.5%)
10–14	49 (29.7%)	54 (24.7%)	99 (27.0%)
15–19	5 (3.0%)	7 (3.5%)	12 (3.3%)
20 and over	14 (8.6%)	34 (16.8%)	48 (13.0%)
Totals..	165 (100%)	202 (100%)	367 (100%)

Course of Outbreak

The accompanying charts, which show the day-to-day occurrence of cases, whether of tonsillitis or scarlet fever, according to the ascertained date of onset of the disease, are of some interest in showing the course of the outbreak and the effects of action taken to bring it to an end. Chart 1 shows the number of "milk" cases, of both scarlet fever and tonsillitis, the "seasonal" cases of scarlet fever being superimposed. From the chart it would appear that the milk outbreak can be limited between December 9 and December 20. The two cases occurring on December 5 and 6 respectively might not be associated with the milk outbreak, and the two cases appearing on December 23 and 27 respectively were, so far as can be ascertained, secondary cases. Other ascertained secondary cases were noted as follows: December 13, one case; December 14, one case; December 17, three cases; December 18, three cases; and December 19, two cases. There may have been more secondary cases, but where definite proof of this secondary character could not be established the cases have been counted as original milk infections.

emission of these secondary cases makes it clear e were no new cases from mass infection of the ilk after December 17, and this would correspond with he fact that infected milk ceased to reach consumers after midday on December 15. The odd cases with an

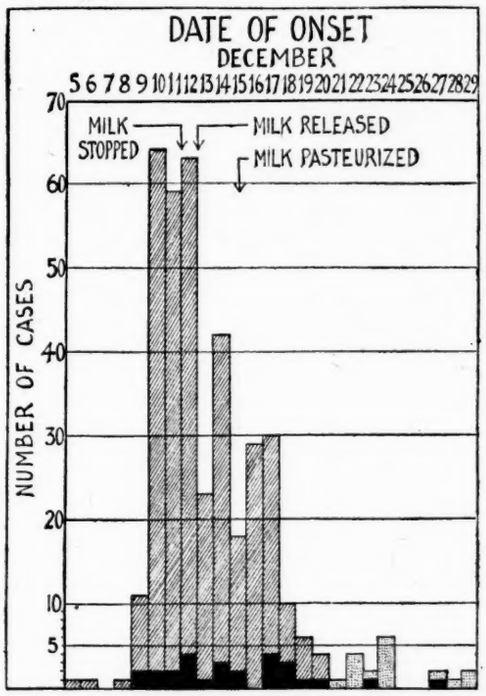


CHART 1.—The shaded area represents those cases of scarlet fever and tonsillitis due to infected milk. Superimposed is a black area representing seasonal cases of scarlet fever only, which arose at the same time as the milk-borne outbreak but were not due to infected milk; similar cases over and above the few milk-borne cases which appeared after December 20 are shown by the dotted area.

onset later than December 17 can be explained either by a prolonged incubation period, a delay in consuming milk obtained on December 15, or possible non-proven secondary cases. The normal incubation period is thus indicated as being from two to three days, and so the milk was apparently first infected not earlier than December 6. It will be remembered that the milk was stopped for a period of twenty-four hours on the evening of December 11, so that no infected milk reached consumers on December 12. This would account for the marked fall in the number of new cases on December 15, but does not explain the even more marked reduction on December 13. This chart appears to show that, assuming an incubation period of three days, a gross infection of the milk took place on December 7, 8, and 9, and for some reason the infection was reduced on December 10, to reappear on December 11, despite the negative bacteriological findings in the milk on that date. This rise, due to apparent recurrence of infection, was partially checked by the with-ho ing of the milk on December 12, and finally stopped by the pasteurization of all the milk on December 15. Boiling of the milk was never adopted by consumers ge erally, and of those who did boil it very few did so be ore December 14, so that this appears to have had ve little effect upon the course of the outbreak.

I understand that there is an increasing belief that milk outbreaks such as this are caused through cows themselves becoming infected by some human agency. In this instance there is no doubt that the cases dating from December 16 were all due to milk which had been infected by the cow found to have an infected teat from which *Streptococci pyogenes* Type II were isolated on December 15, as the infected milker could not have directly infected the milk after December 11. The infection of the cow's teat was clearly at an early stage when first discovered, but Dr. Minett has reason for believing that this cow was

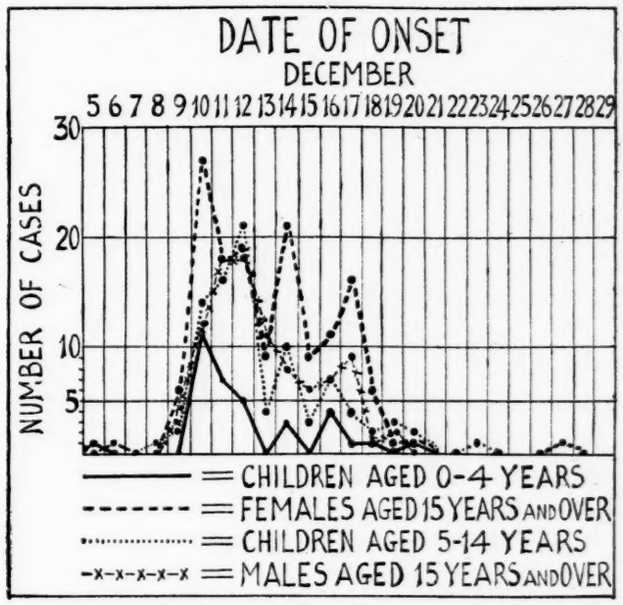

DATE OF ONSET
DECEMBER
5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29
NUMBER OF CASES
30
20
10
5
= CHILDREN AGED 0-4 YEARS
= FEMALES AGED 15 YEARS AND OVER
= CHILDREN AGED 5-14 YEARS
= MALES AGED 15 YEARS AND OVER

CHART 2.—This shows the day-to-day occurrence of cases of scarlet fever and tonsillitis associated with infected milk in different age groups and sexes.

infected by December 6 or 7, and possibly even a few days earlier than this, and so was responsible for the whole outbreak. I understand that recent work carried out at the Research Institute of the Royal Veterinary College would indicate that the possibility is very unlikely of the first part of the outbreak being due to direct infection of the milk by the milker, who probably began with a sore throat about December 5, but nevertheless this possibility would appear to fit in with the otherwise unexplained fall in the number of cases on December 13. It should also be remembered that the milker was doing all the necessary home treatment for his child's otorrhoea as from December 2, and there thus appears to be yet another possible method of spread of infection both to the cow and possibly a gross infection to the milk by means of the milker's hands.

Chart 2 shows the cases split up into the following groups: children aged 0 to 4 years, children aged 5 to 14 years, males aged 15 years and over, and females aged 15 years and over. It is of interest in that it indicates the high proportion of the children under 5 attacked in the early stages of the outbreak, and it shows, too, that the children in this age group and the adult females formed the majority of those who were first attacked. It will be noted that the peak numbers for school children and adult males come two days later than do the peak numbers for the other groups. As compared with adult females, adult males escaped fairly lightly in the later stages of the outbreak. No explanation has been found for these variations.

Clinical Manifestations

I do not intend to deal at length with the clinical manifestations seen in the outbreak, but a few words must be said on this subject. The disease was usually characterized by a very acute onset leading to rapid prostration. The first symptom was commonly described as a burning

or shooting pain in the throat, and many patients were almost able to state the hour at which this symptom occurred. Some two hours afterwards they had difficulty in getting undressed when they realized that it was imperative that they should go to bed. There were, of course, several cases of a very mild nature, but the majority of patients were suffering sufficiently severely to necessitate their staying in bed for several days.

The throat conditions appeared to vary, but could be roughly divided into the three main types described by Dr. Camps in the Chelmsford cases (1935). The cases of scarlet fever were noted as being of a much more serious type than those normally seen. Rashes, when present, tended to be marked and to be of a rather coarse nature; desquamation followed the normal course. In the more severe cases pain was a marked feature, and the tonsillar glands were easily palpable. An interesting point is that one dog (an Airedale) appears to have been affected, though the nature of the infection was not confirmed bacteriologically. It became ill a day before any human case occurred in that particular household, became rapidly collapsed, with marked swelling and obvious pain in the region of the fauces, and was described as being "paralysed" for a week.

Complications

The chief complications noted were adenitis, otitis media, quinsy, and polyarthritic symptoms. One case of nephritis, one of acute appendicitis, and one with a diffuse herpetiform eruption were associated with initial throat infections. These complications made their appearance at intervals varying from three days to three weeks after the onset of the illness, but the majority were seen at the end of the first week. The arthritic symptoms tended to appear a little later than this, and were very persistent. They were not the transient joint pains common with streptococcal throat infections; many patients were still complaining of these arthritic pains three months after the outbreak had ended.

Although the figures are too small to be of much value, it is interesting to compare the occurrence of complications among those cases nursed in hospital and those nursed at home, as shown in Table IV.

From these figures it would appear that, except in the 0 to 4 years age group, hospital treatment does not appear to have had any beneficial effect upon the reduction of complications. All cases treated in hospital received streptococcal antitoxin (scarlatina) serum, but only two cases nursed at home received any serum. It might be argued that only the worst cases were admitted to hospital, but this was by no means the case, as in the early days of the outbreak the presence or absence of a rash was often the deciding factor in the request for removal to hospital, and many of the cases showing no signs of a rash were acutely ill. Nor is it believed that the assessment of complications was very much more accurate among cases nursed in hospital. As will be mentioned later, the possible cause of the comparatively large numbers of complications among the hospital patients was that cross-infection occurred owing to the admission of cases of scarlet fever associated with a coincident "seasonal" outbreak of the disease.

For all cases the percentages of complications were as follows: in the 0 to 4 age group, 38.2 per cent.; in the 5 to 14 age group, 25.5 per cent.; in patients aged 15 and over, 25.4 per cent. This gave a total incidence of 26.6 per cent. These percentages are high and the results serious. Apart from many cases suffering from resultant debility there is little doubt that a late spread of infection from the cases of adenitis and otorrhoea resulted in an increased number of cases of scarlet fever in the district during the three months succeeding the outbreak, and has been responsible for an outbreak of tonsillitis with associated scarlet fever in the Doncaster Royal Infirmary which necessitated the closing of one unit for a short period.

Two deaths have definitely been associated with the epidemic—one in a child aged 2 years suffering from severe scarlet fever, who died within twenty-four hours of the onset of the disease, and one in a male aged 33, who developed adenitis following a severe attack of tonsillitis. One other death was that of a woman aged 38, who developed clinical scarlet fever on December 6 and cannot therefore be definitely associated with the outbreak, although she was taking the milk which later proved to be infected. In all cases death appeared to be due to toxaemia. Unfortunately post-mortem examinations were not possible, nor were swabs taken at the time of the original throat infections for bacteriological examination. It is worth while noting that no cases of puerperal fever occurred during this period or the succeeding months, and that only one case of erysipelas was definitely associated with the outbreak.

TABLE IV.—*The Incidence of Complications in Cases Treated in Hospital as Compared with those Treated at Home*

Age Group (Years)	Adenitis	Otorrhoea	Quinsy	Arthritic Symptoms	Total Cases	Total Complications	Percentage Incidence of Complications
Cases Treated in Hospital							
0–4	—	1 (5.0%)	—	2 (10.0%)	20	3	15.0
5–15	6 (16.2%)	5 (13.5%)	—	4 (10.8%)	37	15	40.5
15 and over	1 (2.2%)	1 (2.2%)	1 (2.2%)	7 (15.5%)	45	10	20.2
Totals ..	7 (6.8%)	7 (6.8%)	1 (0.9%)	13 (12.7%)	102	28	23.8
Cases Treated at Home							
0–4	5 (35.7%)	5 (35.7%)	—	—	14	10	71.3
5–14	4 (7.5%)	1 (1.9%)	2 (3.8%)	1 (1.9%)	53	8	15.1
15 and over	18 (9.2%)	—	11 (5.6%)	22 (11.3%)	195	51	26.2
Totals ..	27 (10.3%)	6 (2.3%)	13 (4.9%)	23 (8.8%)	262	69	26.4

Administrative Problems

From the administrative point of view several problems were raised. Once the outbreak had begun it was quickly realized by the general practitioners that the cases of tonsillitis and scarlet fever were of the same origin, and the question arose as to whether all cases should be

notified as scarlet fever. Several cases exhibiting no exanthem were in fact notified. This accounts for the fact that the figures in this report do not exactly correspond with those in a preliminary annotation published in the *British Medical Journal* (1937, **1**, 26). Rightly or wrongly it was decided to ask for notification only in cases of clinical scarlet fever. In view of the fact that direct case-to-case spread was very limited once the outbreak had begun, the notification of all cases of tonsillitis irrespective as to whether they were associated with the milk infection would have served no useful purpose. It would have been only of limited statistical value unless every case could have been properly investigated by the sanitary inspectors or health visitors as is done in all cases of notifiable infectious disease, and this would have placed an unbearable strain on these staffs whose services at that time were much more usefully applied in other directions.

With regard to isolation hospital accommodation the question of the presence or absence of a rash did not apply. It is true that the majority of cases admitted to hospital were cases of clinical scarlet fever, but cases of tonsillitis were admitted where nursing facilities at home were inadequate. One patient with tonsillitis who developed an acute appendicitis was admitted to hospital for operative treatment, as was also a case of diffuse herpetiform eruption clearly associated with a recent throat infection. One child who had been nursed at home with scarlet fever and had developed otorrhoea was removed to hospital as his mother was expecting to be confined. When home facilities were satisfactory, therefore, cases were nursed at home, but, nevertheless, between December 5 and December 29, 131 patients were admitted to hospital, 102 of these being cases associated with the milk outbreak. Luckily the hospital was nearly empty at the beginning of December, but even then the patients in the sanatorium section had to be given "Christmas leave" to create extended temporary accommodation for scarlet fever cases.

Patients were retained in hospital for three weeks unless complications had ensued. No "return" cases have come to my notice. Some patients developed secondary attacks of tonsillitis in their third week, and this was probably due to cross-infection from "seasonal" cases. Some of the "complications" may have been due to this cause. At the very beginning of the outbreak it had been realized that the sudden spate of cases would probably be infected by an organism of one serological type, and they were accordingly separated from the few cases of scarlet fever already in hospital. Unfortunately, as will be seen from Chart 1, what was apparently a "seasonal" outbreak of scarlet fever began about the same time as the milk outbreak, and with the rush of cases it proved impossible to segregate cases strictly according to their probable source of infection, and cross-infection occurred. These "seasonal" cases were mainly associated with haemolytic streptococci Type IV, though there was one case of Type I infection which ended fatally. The difficulties associated with cross-infection were, however, most noticeable during the three months succeeding the milk outbreak, when, as has been stated, there was an increase over the usual expected number of scarlet fever cases.

During the period of the outbreak typing of haemolytic streptococci from patients was carried out by Dr. Griffith at the Ministry of Health Laboratory. Following the outbreak, through the kindness of Dr. Camps of Chelmsford, all new scarlet fever admissions to hospital have been typed. The point of interest is that, despite the heavy Type II infection in the milk outbreak, this type completely disappeared during the six weeks following the end of the outbreak and was replaced by a bewildering number of different types, which made segregation in hospital a matter of great difficulty. About the middle of February Type II organisms again began to appear, only to disappear early in March.

The other main administrative actions taken early in the outbreak were to inspect the schools in the district chiefly affected, to exclude all children showing signs of sore throat and to recommend their parents to obtain medical advice, and to circularize the doctors in the district regarding the epidemic. This circular letter pointed out that few immediate secondary cases were to be expected, but that danger would arise from cases of otorrhoea, etc., resulting from the infection. The danger was made apparent early in January when a few cases of mastoiditis and adenitis found their way to the wards of the Royal Infirmary and precipitated the throat infection there already referred to. The circular also advised the following quarantine periods:

Cases of scarlet fever and severe tonsillitis—three weeks from the date of onset.

Cases of mild tonsillitis—one week after the subsidence of symptoms.

Cases with throats positive for haemolytic streptococci—one week if no clinical signs of infection appeared. (A good number of these cases were found as interest grew, and caused considerable administrative difficulties.)

Contacts, especially school children, were advised quarantine for one week unless negative throat swabs had been obtained.

The midwives were also circularized and advised to take special precautions for a considerable period, and the necessity for wearing adequate masks was re-emphasized. All visiting was stopped at the Municipal Maternity Home. Several administrative problems of a minor nature occurred during the course of the outbreak, and with these, as with the greater problems, much help was obtained from the Ministry of Health, and especially from a personal visit by the late Dr. Vernon Shaw, who visited Doncaster on December 16.

Summary and Conclusions

1. An outbreak of scarlet fever and tonsillitis due to infection of a milk supply with *Streptococcus pyogenes* Type II, and the administrative action taken to minimize the effects of the outbreak are described and discussed.

2. The distribution of cases shows a heavy attack rate among pre-school children, and also that adults form a larger proportion than normal of the total cases.

3. The primary infection of the milk appears to have been by the cow becoming infected, but on the evidence obtainable locally the possibility of direct contamination of the milk by a milker cannot be entirely disregarded.

4. The complications subsequent upon infection are enumerated, and from this point of view, apart from children under 5 years of age, hospital treatment appears to have been of doubtful value.

5. The only adequate method of controlling an outbreak is by stopping the milk supply or by having it efficiently pasteurized.

6. To avoid a sense of false security being given in the search for haemolytic streptococci in milk small group samples must be taken.

My thanks are due to Dr. F. Griffith, Dr. F. C. Minett, and Dr. F. E. Camps for the help and for advice they have given to me in the preparation of this report.

References

Camps, F. E. (1935). *British Medical Journal*, **1**, 1061.
Picken, R. M. F. (1936). Ibid., **1**, 1291.

THE ADRENAL CORTEX

ITS SUPPOSED FUNCTIONS AND SUGGESTED USES OF CORTICAL EXTRACTS*

BY

W. N. KEMP, M.D.

Vancouver, B.C., Canada

The adrenal gland has been the object of intensive research since Thomas Addison, in 1855, first disclosed its relation to a comparatively uncommon disease, to which his name has been attached. The massive volume of literature on this relatively small paired gland is scarcely commensurate with our factual knowledge of its function in normal physiological processes (Grollman, 1936). In spite of its smallness the adrenal gland must exert a vital influence in the organism, for the surgical removal of both glands soon leads to a complete breakdown of normal function in most of the organs and tissues of the body, rapidly terminating in death.

Each adrenal is situated in the posterior part of the abdomen, overriding the upper pole of the kidney like a "triangular cocked hat with rounded corners." The mammalian adrenal is a compound organ formed by the union of two originally separate tissues—namely, the cortex and the medulla. The cortex, which anatomically and physiologically constitutes the chief part of the gland, is usually of a deep yellow colour, due to the presence of lipids, while the medulla is small and pulpy and of a dark reddish colour due to the presence of blood.

In man and the anthropoid apes the medulla is a post-natal development, being represented at birth by a small strip of undifferentiated tissue only. The cortex, on the contrary, is the whole pre-natal adrenal, which at birth is one-third the size of the kidney. Shortly after birth the foetal adrenal cortex begins to involute, being gradually replaced (the process is not complete until the end of the third year of life) by a permanent cortex and medulla. (In my opinion this period of the "switch over" from the old cortex to the new is a potentially dangerous period in the life of the human infant: a too rapid involution of the foetal cortex and a too slow development of the "permanent" cortex may constitute a hiatus in adequate cortical function which leads to severe symptoms or death.)

Although some variation exists in the cellular arrangement of the cortex in different species, a more or less general pattern is present according to which the cortex is divided into three zones: the glomerulosa, the fasciculata, and the reticularis. The first-named is the layer immediately beneath the capsule. Time will not permit a more detailed description of the anatomy and histology of the adrenal gland.

The Medulla

The function of the adrenal medulla has been the subject of much study and speculation since Oliver and Schafer first directed attention in 1894 to the remarkable rise in blood pressure which follows the subcutaneous injection of a medullary extract. To-day the pharmacodynamic effects of adrenaline are well known, but little has been definitely proved in regard to the medulla's normal physiological function. Whatever that function may be it certainly is not an indispensable factor in animal biochemistry, because the adrenalectomized animal can be maintained indefinitely in good health with a normal function provided an optimum amount of a potent cortical extract be daily injected or ingested. At post-mortem examination there is seldom any hypertrophy of accessory chromaffin bodies if such be present.

The Cortex

Since investigators have failed to demonstrate any essential function of the adrenal medulla interest has gradually shifted to the cortex, as it appears to be the really important and essential part of the adrenal gland. The indispensability of the cortex in the maintenance of the functional integrity of the organism has been conclusively and absolutely proved in oft-repeated adrenalectomies in animals and by clinical experience in cases of Addison's disease and established cases of adrenal haemorrhage. There cannot now be any doubt that the cortical cells of the adrenal gland elaborate a secretion, or secretions, of vital necessity to the continuity of life.

The mechanism by which this hormone exerts its effect is still unproved. However, a great advance in the study of cortical function has been made by the discovery of methods of extraction of the hormone, or hormones, in sufficiently pure and potent form to permit their application to experimental and clinical research. Research into the effects of adrenalectomy on laboratory animals has done much to suggest rational hypotheses in answer to the question of cortico-adrenal function.

Chronic Adrenal Insufficiency

As early as 1856 Brown-Séquard, inspired by Addison's classical description of the clinical picture of chronic adrenal insufficiency (Addison's disease), attempted to reproduce the Addisonian syndrome in animals. The rapidly fatal outcome, the animals surviving only a matter of hours, led him to conclude that the adrenals were indispensable to life. In recent years it has been frequently demonstrated that, with good surgical technique and an operation in two stages, complete adrenalectomy can be performed on all the common laboratory animals with recovery from the usually immediate lethal effects of the operation. However, in two, three, or four days dogs show the early signs of cortical insufficiency, and unless they are supplied with potent cortical hormone (cortin) they die in six or seven days. Recently it has been shown that the ingestion of large quantities of sodium chloride will prolong the life of the adrenalectomized animal.

When a two-stage adrenalectomy has been completed on a dog and the animal recovers from the effects of the anaesthetic and the surgical procedure, one notices few or no abnormal signs for several days, the length of this symptom-free period varying to a considerable extent with the animal's diet. Such an adrenalectomized animal, like Dragstedt's thyroparathyroidectomized dogs (Dragstedt, 1923), is very vulnerable to a meat diet, and its post-operative life can be markedly shortened by such a meat-rich diet.

The first unusual signs seen in the adrenalectomized dog are anorexia and listlessness. The animal becomes more apathetic and vomits a great deal. Usually diarrhoea is present, which soon is very bloody. Muscular movements become slow and uncertain, and weakness of the hind legs may cause the gait to be very unsteady. Eventually the animal lies prostrate. As insufficiency progresses the body temperature falls in warm-blooded animals, and the skin becomes cold and the mucosae turn pale. Muscular twitches or convulsions may appear. Respiration is first rapid and then slow. There is a terminal anuria. Death

* Read before a meeting of the Osler Society.

occurs in coma, usually with respiratory failure while the heart is still feebly beating (Grollman, 1936). These objective signs of acute cortico-adrenal insufficiency are summarized graphically in Fig. 1.

Marked anhydraemia is a constant and striking feature of these adrenalectomized animals, and is due to the great loss of water and sodium chloride by way of the kidneys, owing possibly to impaired powers of resorption in the kidney tubules. This loss of water and electrolytes from the tissues and blood is such a marked feature of acute cortical insufficiency that some observers consider that the

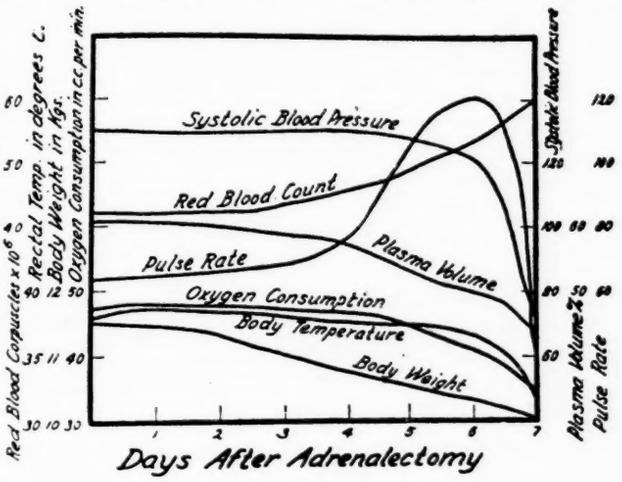


FIG. 1.

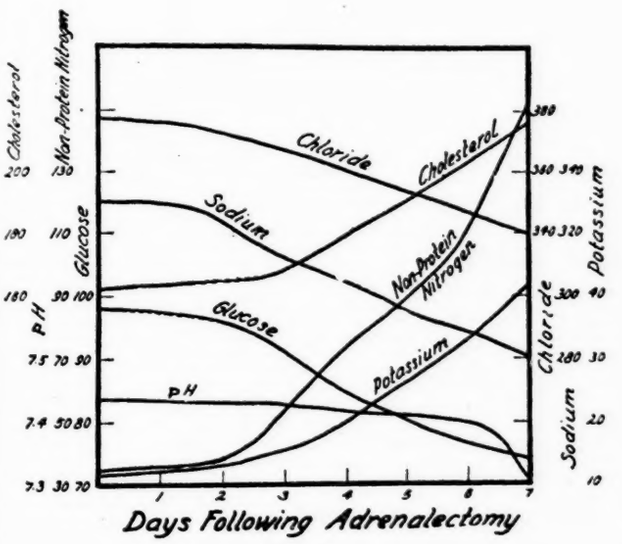


FIG. 2.

prime function of the adrenal cortex is the maintenance of salt and water balance. It is certainly true that the quantity of cortin necessary to maintain life in an adrenalectomized animal or in a person with Addison's disease can be materially decreased by simply increasing the sodium chloride intake. In acute cortical insufficiency there is inevitably a pronounced and constant change in blood chemistry. A rise in non-protein nitrogen occurs early. Later there is a rise in cholesterol and potassium* and a fall in chlorides, sodium, and glucose. The *p*H is that of a severe acidosis. These outstanding features of the blood chemistry are graphically represented in Fig. 2.

* Recent work by Zwemer would indicate that inefficient potassium elimination is a potent factor in the origin of the classical signs of acute cortico-adrenal insufficiency.

Anatomical Changes Found Post Mortem

In comparison with the severity of the *in vivo* signs of acute cortico-adrenal insufficiency few anatomical changes are found on post-mortem examination. The most constant of these findings are (Banting and Gairns, 1926): (1) an enlarged thymus gland; (2) enlarged mesenteric lymphatic glands; (3) degeneration and necrosis of the liver; (4) degenerative changes in the kidneys; (5) congestion and ulceration of the gastro-intestinal tract. When a chronic or partial cortico-adrenal insufficiency is produced in dogs after the method of Crowe and Wisloki (1914) only the following findings were noted after the accidental or deliberate death of the dogs: (1) enlargement of the thymus gland; (2) enlargement of the mesenteric lymphatic glands; (3) hypertrophy of Peyer's patches; (4) visible tonsils (a rarity in a dog).

(It surely must be more than a coincidence that the above findings are the most constant and diagnostic found in infants in Vancouver who have died suddenly and for no apparent reason. In these cases—and there is on the average one a month in this city—the pathologist's diagnosis is invariably "status lymphaticus.")

Function of the Adrenal Cortex

The question naturally arises, What is the function of the adrenal cortex? While many aspects of cortical function are still obscure, experimental research during the past decade has thrown much light on this vital and hitherto little understood endocrine gland. The cortex constitutes the whole adrenal gland in foetal life. The fact that at birth it is one-third the size of the kidney (the adult cortex being one-fortieth) is an indication of its importance in the pre-natal development of the child. Just what that role is we can at present only surmise. At birth the foetal type of cortex (and it is histologically different from the post-natal cortex) begins to involute and the new cortex and medulla to develop. The post-natal development of the cortex is not complete until the end of the third year, according to Grollman. The question of the function of the "permanent" adrenal cortex is now our immediate concern.

Out of the extensive experimentation of the past decade there emerges evidence which suggests that the chief functions of the adrenal cortex are threefold.

1. To maintain normal blood volume by control of excretion and resorption (in the kidney tubules) of electrolytes and water.

2. To act as a general tissue and cell catalyst, particularly in regard to hepatic function.

3. To play an important part in carbohydrate metabolism, particularly in respect to glyconeogenesis.

There is also considerable evidence to indicate that the adrenal cortex is closely related to urea formation, to vitamin C storage, to cholesterol metabolism, and to resistance to infection and toxaemia. Some observers believe that it is a factor in the normal healing of wounds and callus formation. Possibly it increases the production of leucocytes and heightens their phagocytic activity.

From the mere point of view of mathematical probability it is entirely reasonable to assume that many clinical syndromes whose aetiology is at present unknown are due to cortico-adrenal dysfunction or may be influenced favourably by increased cortico-adrenal function or the presence of cortin in increased quantities. In view of the freely admitted limitations of post-mortem study of the adrenals (due to rapid autolysis) it would seem that the

effective elucidation and recognition of new clinical forms of cortico-adrenal hypofunction must be initiated and controlled by open-minded clinicians imbued with the spirit of clinical research so well exemplified by the distinguished career of the late Sir James Mackenzie and so well described by Sir Thomas Lewis (1930).

Subjects for Research

In this spirit of clinical research may I suggest that the members of the Osler Society give their open-minded and earnest consideration to the following entities as worthy of the clinical trial of cortico-adrenal therapy:

I. The so-called "thymic syndrome" (status lymphaticus).
II. Cyclic vomiting.
III. Infantile diarrhoea of uncertain aetiology.
IV. The vomiting of pregnancy.
V. Severe infections.
VI. Severe burns.

I. The "Thymic Syndrome"

Paediatricians practising in the Pacific North-West are well aware of the existence of a real clinical syndrome of uncertain aetiology which, like the Angel of Death, may cause the death of apparently healthy infants as they lie in their cribs presumably asleep. Post-mortem examination in these cases (I quote from the data available from a series of forty-seven such unexpected fatalities in Vancouver in the eight-year period from January, 1925, to October, 1932) reveals little anatomical pathology. Usually the thymus gland is enlarged to a varying degree (assuming the normal maximum weight of this gland in Vancouver children to be similar to that found by Anderson and Cameron (1927) in Glasgow—namely, 15 grammes). The mesenteric lymphatic glands are almost invariably enlarged (tuberculosis being excluded). Petechial haemorrhages are often seen in the serous membranes of the heart and lungs. Peyer's patches are usually enlarged. In such cases the diagnosis of our pathologists (Drs. A. W. Hunter and H. H. Pitts) is invariably "status lymphaticus."

In 1931, before the International Congress of Anaesthetists in New York, and a year or so later before the Vancouver Medical Association, 1933, I presented data in support of the hypothesis that these infants die because of an acute exacerbation of a temporary cortico-adrenal insufficiency, possibly predisposed by thyroid hypofunction. Time will not permit even a summary of these data here. Suffice it to say that the passage of time and the clinical trials of this therapy by my colleague Dr. R. P. Kinsman have made me still more confident of the soundness of the original hypothesis. In brief, I believe that time and repeated therapeutic trials will eventually demonstrate that status lymphaticus and the so-called "thymic syndrome" are essentially the same, being an endocrinopathy primarily involving the adrenal cortex. The final proof (or disproof) of this hypothesis (or some other yet to be formulated) is the responsibility of paediatricians, who from time to time are called to treat patients for "attacks" of this mysterious and often fatal syndrome. The "attacks" referred to are often termed "breath-holding spells," and are generally accepted as evidence of the presence of the "thymic syndrome." In my opinion these syndromes are clinical manifestations of status lymphaticus, differing only in degree from the tragic cases of sudden death referred to in the opening paragraph. These little patients should be given, both for clinical research and for therapeutic purposes, cortical extract in appropriate dosage. Dr. R. P. Kinsman has found 1½ grains of Armour's desiccated extract an effective daily dose. Certainly one need have no fear of giving too much. If, as I hopefully expect, this therapy proves valuable, then real progress will have been made in the elucidation of one of the most tragic and puzzling problems of Pacific North-West medicine. Inasmuch as status lymphaticus snuffs out life in its early stages it is possibly of greater importance than the more widely published problems of tuberculosis and carcinoma.

II. Cyclic Vomiting

I am indebted to Dr. Frederic Fenger of Chicago for the suggestion that cyclic vomiting may possibly be related to adrenal cortical function. The usual teaching in regard to this well-known clinical paediatric problem has been to the effect that the causative factor is ketonaemia due to incomplete oxidation of the fatty elements in the child's diet. The praiseworthy clinical researches of Dods (1935) have definitely shown that ketonaemia and ketonuria are concomitant phenomena and not aetiological factors in cyclic vomiting. The real cause still remains obscure. However, the prodromal symptoms of languor (even prostration), headache, and pallor which precede the vomiting attack, and the vomiting itself which features the syndrome, all indicate a severe metabolic disturbance that suggests cortico-adrenal insufficiency as the most likely basic endocrinopathy. The adequate therapeutic use of a potent liquid extract of the adrenal cortex would do no harm and might prove valuable.

III. Infantile Diarrhoea of Uncertain Aetiology

Severe diarrhoea is an invariable sequel of complete adrenalectomy in dogs. May it not be possible that in some cases of diarrhoea in infants insufficiency of cortico-adrenal function may be the aetiological factor?

IV. The Vomiting of Pregnancy

In suggesting the use of adrenal cortex therapy for this universally common clinical entity, so common that some consider it "physiological," I feel that here at least I am on firm ground. With the co-operation of Vancouver colleagues, in general practice and specializing in obstetrics, I recently (1934) reviewed 200 consecutive cases of hyperemesis gravidarum that had been treated with adrenal cortex, with undoubted success in 85 per cent. of cases. This series is of interest also for the reason that it shows that the oral use of adrenal cortex is effective.

V. Severe Infections

As Grollman (1936a) points out, in patients who have died as a result of a severe acute bacterial toxaemia focal necroses have often been observed in the adrenal cortices. Cloudy swelling and oedema of the cortical cells, congestion, and small focal haemorrhages are also common findings. The question arises, To what extent are the symptoms of asthenia, anorexia, vomiting, etc., that characterize the course of the clinical condition, and which we account for by "toxaemia," the results of the coexisting cortical insufficiency? It is well known that adrenalectomized animals are much more vulnerable to toxins of all kinds than are their litter-mate controls. Accordingly it is reasonable to postulate for purposes of clinical research that the fatal outcome in cases of severe bacterial infection is probably due, in part at least, to acute adrenal insufficiency caused by the bacterial toxaemia.

VI. Severe Burns

According to Grollman (1936b), in uncomplicated cases of superficial burns characteristic changes occur in the

adrenals. They become swollen and deep red. On section extensive haemorrhages may be found. The cells are pale and swollen, and are in a process of hydropic degeneration. While it is now generally supposed that the absorption of toxins from the injured skin (histamine shock) is the prime factor in the fatal outcome, the marked pathological changes found in the adrenal cortices suggest that acute cortico-adrenal insufficiency (secondary to the above-mentioned pathological changes in the cortex) plays a prominent part in these deaths. It is quite within the bounds of reason to expect that the generous administration of cortin in such cases would prevent an otherwise inevitable fatality.

Summary

In summary may I recall to you that we have briefly reviewed the probable functions of the adrenal cortex (it being the "vital" part of the adrenal gland), and have suggested the use of a potent cortical extract in certain clinical entities, including the so-called "thymic syndrome," cyclic vomiting, certain cases of infantile diarrhoea, the vomiting of pregnancy, severe infections, and severe burns. May I suggest in conclusion that it is only by applying clinically the findings of the experimental physiologist that real progress can be made in the solution of our medical problems. Such experimental clinical research can readily be made compatible with the best interests of the patient.

*** *An account of the discussion on this paper will be found at page 1221.*

[Figs. 1 and 2 are reproduced from *The Adrenals*, by A. Grollman (The Williams and Wilkins Company, Baltimore, 1936).]

REFERENCES

Anderson, J., and Cameron, J. A. M. (1927). *Glasgow med. J.*, **108**, 129.
Banting, F. G., and Gairns, S. (1926). *Amer. J. Physiol.*, **77**, 100.
Crowe, S. J., and Wislocki, G. B. (1914). *Johns Hopk. Hosp. Bull.*, **25**, 287.
Dods, L. (1935). *Med. J. Austral.*, **2**, 231.
Dragstedt, L. R., and Peacock, S. C. (1923). *Amer. J. Physiol.*, **64**, 424.
Grollman, A. (1936). *The Adrenals*, p. 162. Williams and Wilkins Company, Baltimore.
—— (1936a). Ibid., p. 365.
—— (1936b). Ibid., p. 364.
Kemp, W. N. (1933). *Canad. med. Ass. J.*, **29**, 506.
—— (1934). *Med. Rec.*, **140**, 239.
Lewis, Sir Thomas (1930). *British Medical Journal*, **1**, 479.

A congress of the International Union for the Study of Population Problems will be held in Paris from July 28 to 31 under the presidency of Professor Adolphe Landry. A large number of papers will be read upon a diversity of populational, biometric, and demographic subjects. A 50 per cent. reduction on the French railways to and from Paris will be accorded to members attending and their families, with free entrance to the Paris Exhibition during the Congress. The British National Committee of the Union is the British Population Society, founded in 1928 to develop in Great Britain and Northern Ireland scientific studies pertaining to problems of population. Membership of this society is open to all those whose scientific or other special qualification will enable them to forward the objects of the society, and carries with it membership of the International Population Union with the right to attend and speak at meetings of the Union and to contribute papers upon populational subjects. Associate membership is open to all interested in populational problems, and includes the right to attend the International Congress. The official journal of the Union is *Population*. Full particulars of the British Population Society may be obtained from the hon. secretary, Dr. C. Conyers Morrell, D.P.H., Mudeford House, Mudeford, Christchurch, Hants.

CHRONIC AGRANULOCYTOSIS SUCCESSFULLY TREATED WITH LIVER

BY

C. R. DAS GUPTA, M.B., D.T.M.Calcutta

AND

L. J. WITTS, M.D.Manch., F.R.C.P.

(From the Medical Professorial Unit, St. Bartholomew's Hospital, London)

A pastrycook aged 25 was admitted to St. Bartholomew's Hospital on May 22, 1936, for dimness of vision. He was quite well and healthy, with normal eyesight, till five years before, when his eyes became inflamed and his vision impaired. He was partially relieved of symptoms for the time being by hospital treatment, but attacks recurred and alternated with intervals of relief. Both eyes were affected by chronic iridocyclitis, of which investigation failed to reveal the cause. In the course of these investigations he was found to have a very low white blood count. It was naturally wondered whether the leucopenia was in any way connected with the iridocyclitis, its origin or its treatment, and whether restoration of the white count to normal would improve the condition of the eyes.

Case History

Apart from the iridocyclitis the only abnormality was a shallow ulcer on the inner aspect of the cheek. The ulcer was first noticed by the patient about nine months before, and it appeared and disappeared at irregular intervals without any treatment. The family and personal history were good, and there was no history of allergy in the patient or his relatives. Nine months ago he took a proprietary tonic which then contained amidopyrine, of which he probably had some 30 grains in all. About the same time he had one or more injections of gold for the eyes without any benefit.

The blood count on May 20, 1936, was: red cells, 6,140,000 per c.mm.; haemoglobin, 102 per cent.; platelets, 250,000; white cells, 3,600, of which 1,188 were polymorphonuclear cells. Two days later the white blood count was 2,800, of which 812 were polymorphonuclear cells. The differential count on the bone marrow obtained by sternal puncture on June 4, 1936, was as follows:

Myeloblasts	3%	Eosinophils	2%
Premyelocytes	3%	Lymphocytes	4%
Myelocytes	32%	Monocytes	0.5%
Metamyelocytes	10%	Reticulum cells	0.5%
Staff neutrophils	13%	Macroblasts	11%
Segmented neutrophils	1%	Erythroblasts	20%
Basophils	0%		

The most notable feature of the marrow smear is the excessive proportion of myelocytes, apparently due to a failure in their development into polymorphonuclear cells. Maturation has been arrested, though at a later stage than in a previous case, in which the cells had not advanced beyond the myeloblast level (Witts, 1936). The myeloid cells, especially the myelocytes, seemed more fragile and more easily "smudged" than in health; their granulation was scanty and often lacked uniformity. The nucleated red cells were less mature than in the normal marrow smear and there were few pyknotic nuclei. In view of the changes in the erythropoietic tissue and of the subsequent response to liver, it is interesting that the fractional test meal revealed achlorhydria; unfortunately the effect of histamine was not observed.

Failure with Nucleotide Therapy

It was concluded that the patient was suffering from a chronic form of agranulocytosis, possibly the effect of

the amidopyrine and gold which he had received. In previous work on agranulocytosis (Witts, 1936) we had had troublesome reactions on treatment with pentnucleotide. Pentnucleotide is an approximately equimolecular mixture of the sodium salts of the four nucleotides obtained by the hydrolysis of yeast nucleic acid. These nucleotides are all compounds of bases with *d*-ribose and phosphoric acid. The four nucleotides are: adenylic acid (adenine ribo-phosphoric acid), guanylic acid (guanine ribo-phosphoric acid), uridylic acid (uracil ribo-phosphoric acid), and cytidylic acid (cytosine ribo-phosphoric acid). Of these nucleotides the first two are derived from purine bases and the second two from pyrimidine bases. Dr. A. L. Bacharach suggested to us that, in view of the pharmacological action of adenosine on the cardiovascular system, it was possible that the adenylic acid was responsible for the reactions occurring after injection of pentnucleotide and that they might be avoided by omitting the purine derivatives. The Glaxo Laboratories kindly supplied us with an equimolecular mixture of the two pyrimidine nucleotides, cytidylic and uridylic acids. It was put up in the same concentration as pentnucleotide, 0.7 gramme per 10 c.cm. Ten cubic centimetres were injected twice daily for six days, but there was little effect on the total or the differential white cell count. After a few days' interval the patient was treated with pentnucleotide in doses of 10 c.cm. twice daily intramuscularly for nine days; this too failed to produce any increase in the white count or the polymorphonuclear cells. Neither the pyrimidine nucleotides nor pentnucleotides gave any troublesome reactions in this patient.

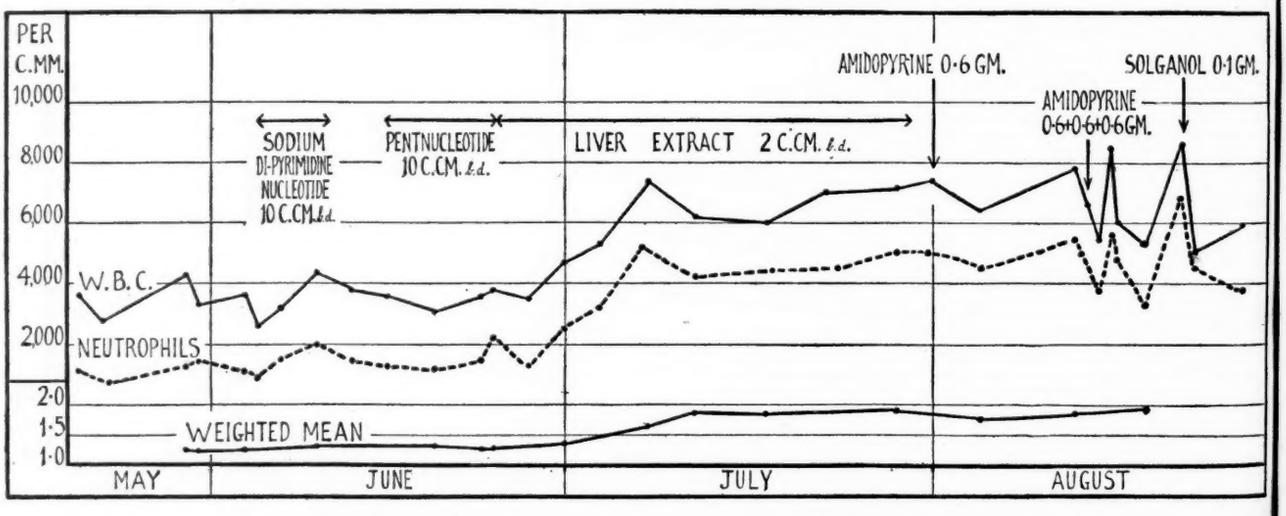
Results of Liver Treatment

Nucleotide therapy having failed, the patient was treated with liver extract (hepatex), which was given in doses of 2 c.cm. twice daily intramuscularly. An improvement in the total white cell count and the neutrophils was noticed on the fifth day; this improvement continued and reached a maximum on the thirteenth day of the liver treatment, when the total white cells had risen from 3,800 to over 7,000 per c.mm., of which more than 5,000 were neutrophils. Liver treatment was continued for thirty-five days, during which time the total white cells fluctuated between 6,000 and 7,000 per c.mm., with a total neutrophil count of 4,000 to 5,000 per c.mm. The weighted mean of the nuclear lobes in the Arneth count, which was very low to start with, was much higher at the end of the liver treatment, though it was still below the normal limit, and large mononuclear cells, which had constituted about 20 per cent. of the white cells, fell to about 6 per cent. at the end of the treatment. The total white cells, neutrophils, and weighted mean are shown graphically in the chart. Sternal puncture was done again at the end of liver treatment, when a preponderance of polymorphonuclear leucocytes was found and the differential count was as follows:

Myeloblasts	4%	Eosinophils	1%
Premyelocytes	2%	Lymphocytes	10%
Myelocytes	11%	Monocytes	0.5%
Metamyelocytes	6%	Reticulum cells	0.5%
Staff neutrophils	35%	Macroblasts	3%
Segmented neutrophils	14%	Erythroblasts	12%
Basophils	0%		

From the examination of the blood and of the sternal puncture material the patient now appeared to be in a normal haematological state, but his dimness of vision persisted. It was decided, by giving a therapeutic dose, to find out if he was suceptible to amidopyrine. With this view the diurnal variation of the leucocytes from 10 a.m. to 6 p.m. was first observed, the patient being kept in bed during the whole time but having the usual diet. Next the effect of a single dose of amidopyrine and of three successive doses of the drug were noted. No immediate effect on the total white cells and the neutrophils was apparent after single or repeated doses, though there was a suggestion of a slight delayed action. As the patient had had injections of gold for his eye trouble the effect of 0.1 gramme of solganol intramuscularly was noted. The white cells fell from an unusually high level of 9,200 (neutrophils 6,800) to a minimum of 5,000 (neutrophils 2,000) six hours later, and they remained at a lower level than previously for the remainder of the period of observation. It is doubtful, however, whether the fluctuations in the white cells were attributable to the amidopyrine and the gold, as they can be equally well explained by the instability of a marrow which had so recently been stimulated to activity after a long period of torpor. Further experiments were impossible, as the patient was naturally anxious to return home after his long stay in hospital. In November, 1936, his eyes were a little better, and the white cells were 7,600 per c.mm.

He was seen again in May, 1937. He was much better in himself, but there was no change in the eyes, and the iritis continued to flare up at intervals. He had had



no treatment except atropine drops. The blood had been examined several times and found normal. The count on May 4, 1937 was: red cells, 4,940,000 per c.mm.; haemoglobin, 110 per cent.; white cells, 7,100 per c.mm.; colour index 1.1. The differential white count was: lymphocytes 14 per cent., polymorphs 77 per cent., eosinophils 1 per cent., basophils 1 per cent., metamyelocytes 2 per cent., and monocytes 5 per cent.

We do not know why some patients with agranulocytosis respond to nucleotide, others to liver, and others again to neither of these substances. In acute cases, most of which are due to sensitivity to amidopyrine, the predominant cell in the marrow is the myeloblast or stem cell. It is in cases of this kind that nucleotide has had most success. Our patient's illness was chronic, and the development of his white cells was apparently arrested at the myelocyte level. He responded to liver but not to nucleotide. It may be, then, that the results of treatment are to some extent determined by the level at which leucopoiesis is arrested, but our data on these matters are still too fragmentary to be regarded as reliable evidence.

Summary

A man who had suffered for five years from an unexplained iridocyclitis was discovered during the course of a routine investigation to have a mild chronic agranulocytosis. Sternal puncture revealed arrest of maturation of the myelocytes in the bone marrow. The patient had taken amidopyrine and gold in the past, but no clear evidence of sensitivity to either of these drugs was obtained. There was no response to pyrimidine nucleotides or to pentnucleotide, but on treatment with intramuscular liver extract the white cells returned to normal levels and the bone marrow was restored to normal. The blood has remained normal without further treatment, but the iridocyclitis has not greatly improved.

REFERENCE

Witts, L. J. (1936). *Proc. roy. Soc. Med.*, **29**, 671.

L. J. Lindström (*Finska LäkSällsk. Handl.*, March, 1937, p. 207) calculates that from 2 to 3 per cent. of all males suffer from undescended testicle, and that at least thirty different operations have been devised for its cure. At the Vasa Hospital he has practised the operation devised by the American Torek on seven patients whose ages ranged from 1½ to 33 years. One of the patients, aged 22, was so pleased with the results of the first stage of the operation that he refused the second stage as superfluous. In every case the wounds healed by first intention, the testicle remained within the scrotum, and the patient was very pleased with the final results. At the first stage of the operation the testicle is detached from the surrounding structures, the cord being freed from fibres of muscle and connective tissue and the pampiniform plexus. After the testicle and scrotum have been secured to the inner side of the thigh the second stage of the operation is undertaken from four to six months later, and the testicle and scrotum are secured in the normal position. For children it may be well to give hormone treatment as a preliminary to the operation, which should preferably be undertaken at the age of 12 to 14 if a hernia or other complication has not required an earlier intervention. Waiting till puberty may render any operation superfluous; and in this connexion the author refers to the experience of Bjerke, who in 1935 gave an account of 188 Danish boys with undescended testicle. In 63 per cent. spontaneous descent occurred, the arrival of the testicle within the scrotum taking place in most cases between the ages of 10 and 15.

CANCER OF OESOPHAGUS TREATED BY DEEP X-RAY THERAPY

(SYMPTOM-FREE NEARLY TWO YEARS)

BY

HERBERT TILLEY, F.R.C.S.

Consulting Surgeon, Ear, Nose, and Throat Department, University College Hospital; and the Radium Institute

This brief communication refers to a patient in whom cancer had developed in the mid-thoracic region of the oesophagus. The case-history seems worthy of publication because the method employed by Dr. Levitt (*vide infra*) for distal irradiation of the lesion was followed by a much longer freedom from recurrence than had hitherto come within my personal experience. This had been limited to local therapy, which during the past ten years or so involved the implantation of platinum-screened needles containing radium element or its emanations in glass "seeds."

It is scarcely necessary to add that, by direct oesophagoscopy, these were inserted into the visible growing margins of the lesion and its deeper peripheral extensions in so far as these could be gauged by careful inspection of the diagnostic *x*-ray film. Perhaps it may be permitted me to state that having been associated with the Radium Institute since its foundation in 1910, an exceptional amount of material has been at my disposal for testing various techniques which, each and all, have aimed at providing uniform and efficient irradiation of oesophageal cancer. Yet in spite of such advantages the results have been very disappointing. I cannot recall to mind a single patient who did not succumb to the disease within twelve months from the commencement of treatment.

In making this statement it would be only fair to add that a large majority of those patients belonged to the poorer classes and did not seek relief from their chief symptom, dysphagia, until the primary lesion was far advanced and not infrequently associated with near or distant secondary deposits. In such circumstances it was only possible to destroy the obstructive portion of growth and thereby restore the power of swallowing. As might be expected, considerably longer respites were afforded to patients more happily situated provided that their lesion was treated in its earlier phases. But even so, I think it will generally be agreed by experts that luck has played a considerable part when a patient has enjoyed a comparatively long freedom from recurrence, because this implies that, by mental visualization alone, the surgeon has been fortunate enough to implant the radium needles in the deeper, peripheral, and actively growing areas of the growth (*vide* H. S. Souttar, *British Medical Journal*, May 1, 1937). On the other hand, it cannot be denied that those who have mastered the technique of local irradiation will secure better results than the occasional operator—which seems to support the definition of "luck" as "an accident which rarely happens except to the competent."

Be that as it may, I had seen a few patients who, after treatment by deep *x*-ray therapy, had secured far longer periods of freedom from recurrence than any obtained by me with local irradiation, and the following case-history seems to warrant the advice which was given to the patient.

Clinical Record

H. S., aged 75, was referred to me on July 7, 1934, with the history of "difficulty in swallowing," which had been slowly increasing since it was first noticed some three

months earlier. Otherwise he was a well-built, healthy-looking man who appeared to be much younger than his years. A medium-sized oesophageal bougie met with complete obstruction about four or five inches below the cricoid constriction. The patient was referred forthwith to Dr. Walter Levitt with the expressed wish that he should treat the case by deep *x*-ray therapy provided that my provisional diagnosis of a malignant lesion was confirmed by *x*-ray examination of the strictured region. He sent the patient to Dr. John Sparks, who returned a "true bill" within a few hours, and thenceforward Dr. Levitt took charge of the case. It may be of interest to those engaged in radiotherapeutics to read the following description of and comments on the method he adopted, together with other details which should be of value to surgeons who are practically concerned with cancer of the oesophagus.

Notes by Dr. Walter M. Levitt

The Method.—(1) The rays are entered through long narrow fields centred over the oesophagus—long because of the tendency of the disease to spread submucously up and down the oesophagus, and narrow in order to limit the irradiation of normal tissues. (2) Usually six fields are employed, and these are grouped about the mid-line, three anteriorly and three posteriorly. A geometric method of planning them is used in order to ensure accuracy of firing. (3) The treatment is applied daily for about a month. (4) The technical details of the treatment are so adjusted that a certain minimum *intensity* ("brightness of illumination") is obtained at the growth, and a certain daily *dosage*. (5) Severe skin reactions which arise as a result of giving the requisite dosage invariably clear up rapidly and without any difficulty.

Results.—A good palliative result is obtained in a high proportion of cases—over 60 per cent. The growth apparently disappears and swallowing is restored. The ultimate prognosis, however, varies in the different sections of the oesophagus. The best situation is the upper third of the oesophagus. One patient with a carcinoma in this region is alive and well three and a half years after treatment and another three years after treatment. It seems likely that a certain number of permanent cures may be obtained in this region. The middle third growths do very well for a time, perhaps a year or two, but so far no patient has survived longer than two and a half years. The lower third growths give the worst results, as to both immediate result and duration. Growths originating in the cardia of the stomach and invading the oesophagus should not be treated.

Complications.—The two most common are mediastinitis and lung changes. Mediastinitis results when an extensive infiltrating growth is rapidly absorbed, leaving the oesophageal wall porous to the oesophageal contents, thereby allowing the mediastinum to be infected. This is not a common complication. Lung changes, although their incidence has been reduced, still occur in a proportion of cases, especially in the middle third growths, and they vary in severity. If the patient survives long enough they tend to improve; but at any stage the patient may succumb to an ordinary acute respiratory infection.

In Mr. S.'s case the treatment was applied from July 9 to August 28, 1934, and it will be remembered that the lowest portion of his stricture always showed a suspicious roughness after the treatment. I cannot help feeling that I did not carry my fields down as low as I ought to have done; if I had the result might have been better.

Subsequent History

On September 18 and November 29, 1934, Dr. Levitt reported that there was "no sign of any growth and food was being swallowed without any difficulty." This satisfactory condition was maintained for approximately eighteen months, when the patient again began to notice a slight obstruction to the passage of "stringy foods and the skins of certain fruits." On May 6, 1936, under a general anaesthetic and by direct oesophagoscopy, I found that the upper end of the original ulceration was represented by a dull white ring of scar tissue through which it was only possible to pass a No. 14 bougie, and this met with a second constriction about two inches further down. It was soon found that if the bougie was passed through both of these and left *in situ* for five minutes semi-solid food could be swallowed without difficulty. The patient quickly learned to carry out the manipulations without assistance. Nevertheless it was impossible not to regard seriously the recurrence of some degree of dysphagia, however much one hoped it might be due to a later development of scar tissue in the lumen of the original growth. But had there been any doubt as to its recrudescence this was soon dispelled by the supervention of hoarseness, which on September 17 last I found to be caused by "recurrent paralysis" of the left vocal cord, and obviously implied a mediastinal extension of the oesophageal growth.

Thenceforward difficulty in swallowing increased rapidly, and finally liquid nourishment was in great part regurgitated. Consequently on December 14 I inserted a Symonds gum-elastic tube, which afforded an easy passage for fluid nutriment. It remained *in situ* for three weeks, by which time maceration had brought about its collapse and therefore an almost complete inability to swallow liquids. On January 5, 1937, a fresh tube was inserted, and this sufficed the needs of the patient until March 21, when he died in his sleep.

Comment

The dates given in the above case-history show that from the completion of the treatment the patient lived four months short of three years. During that time he was entirely symptom-free for a year and eight months, and for the following eight months there was little difficulty in swallowing soft foods after the passage of a No. 14 oesophageal bougie. Furthermore, until the late autumn of last year the patient was able to enjoy all the amenities of his country life, which included riding and shooting. None of my previous early cases treated by local irradiation had lived more than fifteen months, and few reached the anniversary of such intervention. Nor am I aware of any records which prove that other surgeons have secured more favourable results. Had the case above reported been so exceptional as to merit the criticism that "one swallow does not make a summer" I should have hesitated to draw any deductions from my solitary harbinger, but seeing that Dr. Levitt (*vide supra*) had been able to prove the existence of others, I feel tempted to believe that "the winter of our discontent" with local irradiation of oesophageal cancer has been made brighter by what is termed deep *x*-ray therapy.

A. Hagedoorn (*Brit. J. Ophthal.*, May, 1937, p. 234) describes the changes occurring in a woman of 56 years who had been under treatment for trachoma since childhood. Several photomicrographs, minutely described, illustrate the paper. After two years' treatment the eye and posterior parts of the lids were excised. On examination sections indicated a precancerous condition. One year later a small recurrent tumour appeared confirming the diagnosis of cancer, though no other metastases were discovered. Only one case of cancer associated with trachoma has been previously recorded.

ORAL ADMINISTRATION OF OESTRIN TO PREMATURE BABIES

BY

MABEL F. POTTER, M.B., Ch.B., M.C.O.G.

Obstetric Registrar, Bristol Royal Infirmary; Honorary Medical Officer, Bristol Maternity Hospital

The premature infant has a very precarious hold on life, and the neo-natal mortality of these babies is high. Therefore any treatment likely to reduce this loss will be eagerly received by both obstetricians and paediatricians.

In an article in the *Archives of Disease in Childhood* Moncrieff (1936) gives the results of an investigation at Queen Charlotte's Hospital into the use of subcutaneous injections of oestrin for premature babies; in this he reports that Aschheim (1927) suggested that premature babies might be benefited by the administration of oestrin. The arguments in favour, according to Martin (1929) are:

1. The blood of newly born babies contains a comparatively large amount of oestrin.

2. This is rapidly excreted by the kidney, and the urine is oestrin-free after about four days.

3. A baby born prematurely is at a disadvantage because it lacks the stimulus of the oestrin which would normally have been present in its blood had it remained *in utero*.

4. The administration of oestrin helps to make up this deficiency.

Moncrieff gives a résumé from the literature of previous experience with oestrin and then adds the results of his own investigations. His conclusions, based on the results with eighty premature babies, some treated and some as controls, were that "subcutaneous injections of oestrin during the first seven days of life have a slight stimulant effect as indicated by a better gain in weight than in babies not so treated. This improvement is more obvious in girl babies than in boy babies." Moncrieff does not consider the advantage definite enough to justify the use of oestrin as a routine treatment, however.

Since about September, 1936, oestrin has been used orally for premature infants at the Bristol Maternity Hospital. In personal experiments in feeding mice with oestrin it was found to act as well given orally as when injected, although a larger dose was necessary. Therefore it was decided to give the babies an oral preparation to avoid the unnecessary trauma of daily or more frequent injections, and Schering's preparation of progynon dragées was selected for use. Lately these have been supplied free by Messrs. Schering Ltd.

The dose decided upon and found satisfactory was half a dragée twice daily. This is equivalent to 500 international units twice daily. One dragée was dissolved in two drachms of warm (not hot) water, and one drachm given as a dose. At first the oestrin was given with little faith in its efficacy, but the nursing staff soon reported that the premature babies were causing less anxiety; the initial loss of weight appeared to be less, and this was usually made up sooner. These babies were very carefully tended, but only under the same conditions as could be obtained in any ordinary home.

Since using oestrin no premature baby born at this hospital to whom it was administered has died; a number of the babies were under 4 lb. at birth, and all have been born during the coldest six months of the year. Therefore, although the series was only a small one, it seemed to be worthy of record.

Before giving details of the premature babies it might prove of interest to mention one sick infant, a boy, who appeared to be benefited by progynon. In this case the maternal history revealed the presence of toxaemia, albumin ++, and marked oedema; the blood pressure was 168/110. Medical induction took place on November 23, 1936, at thirty-nine weeks. The baby weighed 7 lb. at birth, and, the mother having no breast secretion, was artificially fed; he developed gastro-enteritis. His weight fell to 4 lb. 14 oz. at 2 weeks, and he was very ill. At this stage, his weight being under 5 lb., it was decided to add progynon to the other treatment, and this appeared to help. The baby eventually did well, gaining 1/2 lb. weekly and weighing 12½ lb. at 4½ months.

Two premature babies not born in the Bristol Maternity Hospital are included in the following series, as they were born during the period under review and received the progynon treatment.

Case Histories

Cases 1 and 2.—Premature girl twins. The mother had albuminuria, hydramnios, and oedema of legs. The first baby weighed 4 lb. 7½ oz. at birth, and 4 lb. 7½ oz. at 2 weeks; and the second baby 3 lb. 10 oz. at birth, and 3 lb. 10½ oz. at 2 weeks. Both did well and were discharged at 2 weeks.

Case 3.—Baby girl born September 9, 1936, at thirty-five weeks, of healthy parents. Weight 3 lb. 12 oz. There was a large swelling of the head below the occiput and extending downwards into the neck. The swelling was mostly cystic, with a small portion more solid. The skin was deficient over this swelling. Operation was performed at twenty-four hours, a meningocele and a small encephalocele being removed, with redundant skin, etc., and the healthy skin sutured. The patient was feeble at first, but always took feeds well. She was discharged at 4 weeks, 3 lb. 14 oz. in weight. At 6 months she weighed 11 lb. and seemed normal in every way.

Case 4.—Baby girl. Third pregnancy. Terminated November 23, 1936. Maternal history: first baby premature, lived one week; second baby normal, but pre-eclampsia present during the pregnancy. No evidence of toxaemia, but labour started spontaneously at thirty-three weeks. Baby 3 lb. 12 oz. at birth. She lost weight for over a week, but gained 1 oz. daily for last four days, and was discharged at 2 weeks, weighing 3 lb. 10 oz.

Case 5.—Baby girl. Maternal history: toxaemia, albuminuria +, oedema +, blood pressure 190/90. Medical induction took place at thirty-eight weeks, on November 19, 1936. The infant weighed 4½ lb. at birth and 5 lb. at 2 weeks.

Case 6.—Baby boy. Maternal history: chronic nephritis, two previous miscarriages. The mother had been on diet and treatment throughout pregnancy, but had become very toxic; blood pressure 210/144, oedema +, albuminuria ++. Surgical induction on February 3, 1937, at thirty-three weeks; weight of baby at birth, 3 lb. 13 oz.; at 18 days, 4 lb. 1 oz.

Case 7.—Baby girl. Maternal history: mother pre-eclamptic; blood pressure 176/110, oedema +, albuminuria ++; no improvement with treatment. Medical induction performed on February 8, 1937, at thirty-six weeks. Weight at birth, 3 lb. 8 oz. Patient discharged at 17 days weighing 4 lb. 2½ oz.

Cases 8 and 9.—Twins (monovular, girls). Maternal history: mother 36 years old, this being her second pregnancy; there was toxaemia, albuminuria +, oedema ++; and the blood pressure was 160/110. Case 8 weighed at birth 4 lb. 7½ oz., and at two weeks 4 lb. 12 oz. Case 9 at birth was 4 lb. 1½ oz., and at 2 weeks 4 lb. 7½ oz. The weights at 3 weeks were Case 8, 5 lb., and Case 9, 4 lb. 13 oz.

Case 10.—Baby boy. Maternal history: the mother was 36 years old, and had been married ten years. This was her

first pregnancy. Spontaneous labour occurred at thirty-six weeks, with a difficult breech delivery. The baby was somewhat shocked, and weighed 4 lb. 15 oz. at birth. On discharge at 2 weeks his weight was 5 lb. 4 oz.

Case 11.—Baby boy. Normal healthy parents. Spontaneous delivery at thirty-five weeks. His weight was 5 lb. 3½ oz. at birth, 5 lb. 5 oz. at 2 weeks, and 8 lb. 12 oz. at 2 months.

Table of Results (No Deaths)

Case No.	Sex	Weight		Age on Discharge
		At Birth	On Discharge	
1	Girl	4 lb. 7½ oz.	4 lb. 7½ oz.	2 weeks
2	„	3 lb. 10 oz.	3 lb. 10½ oz.	2 „
3	„	3 lb. 12 oz.	3 lb. 14 oz. + operation	4 „
4	„	3 lb. 12 oz.	3 lb. 10 oz.	2 „
5	„	4 lb. 8 oz.	5 lb. 0 oz.	2 „
6	Boy	3 lb. 13 oz.	4 lb. 1 oz.	2½ „
7	Girl	3 lb. 8 oz.	4 lb. 2½ oz.	2½ „
8	„	4 lb. 7½ oz.	4 lb. 12 oz.	2 „
9	„	4 lb. 1½ oz.	4 lb. 7½ oz.	2 „
10	Boy	4 lb. 15 oz.	5 lb. 4 oz.	2 „
11	„	5 lb. 3½ oz.	5 lb. 5 oz.	2 „

Summary

Details are given of eleven premature and one sick baby treated with progynon. This preparation of oestrin, given orally, appears definitely helpful to premature infants. The babies cause less anxiety. The feeds are taken better ; the initial loss of weight appears less and is usually made up sooner. No baby to whom it was given died.

REFERENCES

Aschheim (1927). *Arch. Gynäk.*, **132**, 179.
Martin, E. (1929). *Mschr. Geburtsh. Gynäk.*, **82**, 66.
Moncrieff (1936). *Arch. Dis. Child.*, **11**, 2.

R. Opsahl (*Norsk Mag. Laegevidensk.*, April, 1937, p. 9) has scrutinized the records of necropsies at the Ullevaal Hospital in Oslo for the twenty-year period 1916–35, with special reference to primary malignant disease of the lungs. During this period 2,005 cases of carcinoma and sarcoma came to necropsy, the malignant disease being in some of these cases an incidental finding. In addition to the fifty-six established cases of primary malignant disease of the lungs (twenty-eight men and twenty-eight women) there were fourteen cases in which this diagnosis was uncertain and eight in which it was possible but not probable. The age incidence was greatest between 50 and 60 (seventeen cases)—a little earlier in life than in other forms of malignant disease, which reached their maximum frequency between 60 and 70. Only in eleven of the fifty-six cases were the new growths diagnosed clinically. The duration of the disease was usually between four and twelve months. The fifty-six cases were classified in four five-year groups and in relation to the total number of cases of malignant disease in each five-year group. In the first five years primary malignant disease of the lungs constituted 1.8 per cent. of all the cases of malignant disease in this period. The corresponding figures for the next three five-year periods were 2.7, 3.1, and 3.1 respectively. Putting these figures to the test of modern statistical criteria, the author comes to the conclusion that his material gives no support for the assumption that there is a real increase in the incidence of primary malignant disease of the lungs.

VACCINE TREATMENT OF MEASLES

BY

A. A. CUNNINGHAM, M.D.Dub., M.R.C.P.Lond., D.P.H.

Senior Medical Officer, North-Western Hospital (L.C.C.)
late Senior Medical Officer, Park Hospital (L.C.C.)

Measles is typically a disease of childhood, the majority of the patients being attacked in the first five years of life, and although it is still regarded by the general public as a trivial illness, its complications, both immediate and remote, are severe enough to constitute a major medical problem. Bronchopneumonia remains the most serious and dreaded complication, and is largely responsible for the present mortality rate.

Wynn of Birmingham has for some years advocated the use of a special vaccine in the treatment of pneumonia and bronchopneumonia. His results have apparently been good in those cases in which the diagnosis is made early and the appropriate vaccine treatment instituted in the first twenty-four to forty-eight hours of the illness. The vaccine for bronchopneumonia contains equal numbers of pneumococci, haemolytic streptococci, and Pfeiffer's bacilli. Fresh cultures are used and the organisms are killed by heat. Wynn (1936) recommends 600 million organisms—that is, 200 millions of each organism—as a suitable injection dose for an adult. Children require proportionately smaller doses, but at 1 year old 20 millions of each organism can be given with impunity. Three such injections subcutaneously at intervals of twenty-four hours are recommended.

Production of Reactions

The vaccine treatment of acute infections has not found favour owing to the fear of producing reactions in a patient who is dangerously ill. According to Wynn this is a fallacy, as reactions occur in chronic infections only when patients are sensitized and specific antibodies are present in the circulation. In the early stage of an acute infection antibodies are absent, and therefore these reactions do not occur. Immunotherapy by vaccine treatment aims at the production of antibodies at an earlier stage than would usually be the case. Specific antibodies do not appear for several days, but the vaccine used is stated to have an immediate effect in that it stimulates the production of non-specific antibodies—various bactericidal substances which appear in the circulation. These are later supplemented by the specific antibodies, but the greatest stress has been laid on the value of the non-specific immediate response to the vaccine injections, which if given sufficiently early are claimed to abort the infection.

In measles bronchitis is present in the early stages in all but the mildest and modified cases. It usually clears up in a few days ; but occasionally, and especially in poorly nourished and debilitated children, it progresses to bronchopneumonia. The detection of bronchopneumonia is very difficult at times, and it is only by taking into consideration the general condition of the patient, in conjunction with the various physical signs and symptoms, that one can hope to arrive at a reasonably accurate diagnosis. Areas of lung collapse are met with in young children with acute bronchitis and may easily be mistaken for areas of pneumonic consolidation.

In this investigation we decided to treat only those patients suffering from measles in the various stages of development up to the time of the appearance of the full-blown morbilliform eruption. All late cases with

fading rashes were therefore excluded. The question of using alternate cases on admission as controls was carefully considered, but this was regarded as impracticable, so it was decided to treat by vaccine those cases admitted to five specified wards and to treat as controls those admitted to five other wards. Admissions to the various measles wards were in strict rotation as vacancies occurred.

Treatment

The stock vaccine used was prepared in the Southern Group Laboratory under the direction of Dr. J. E. McCartney. It was killed by heating at 60° C. for thirty minutes, and was made from young active cultures. The vaccine was so constituted that there were 600 million organisms in each cubic centimetre, 0.1 c.cm. being regarded as a suitable dose for a child 1 year old, 0.2 c.cm. for a child 2 years old, and so on. The first injection was given for the most part on the day of admission, but in a few instances, when the child was admitted late at night, the injection was deferred until the next morning. The routine treatment consisted of three subcutaneous injections of equal amount at intervals of twenty-four hours. All cases of measles had a small prophylactic injection of diphtheria antitoxin on admission.

The following tables give briefly the incidence of the various complications in the specially treated group and in the corresponding set of controls.

TABLE I.—*Chest Complications*

Series	Cases	Lobar Pneumonia	Bronchopneumonia (measles)				Broncho-pneumonia (measles and pertussis)		Empyema (strep.)	Deaths (due to measles)	
			No.	%	Deaths	Mortality %	No.	Deaths	No.	No.	%
Vaccine	236	1	24	10.1	5	20.8	2	1	1	5	2.1
Control	278	–	25	9.0	7	28.0	1	1	–	7	2.5

TABLE II.—*Ear Complications*

Series	Cases	Measles					Measles (with intercurrent disease)		Deaths (directly due to ear complications)
		S.O.M.* (right)	S.O.M. (left)	S.O.M. (bilateral)	S.O.M. Total	Mastoidectomy	S.O.M. (measles and pertussis)	S.O.M. (scarlet fever)	
Vaccine	236	10	9	16	35 = 14.8 %	1	1	1	—
Control	278	10	15	14	39 = 14 %	1	1	1	—

* S.O.M. = Suppurative otitis media.

TABLE III.—*Complications in Age Groups*

Age Group	Vaccine Series (236 Cases)							Control Series (278 Cases)						
	No. in Group	Broncho-pneumonia		Suppurative Otitis Media		Deaths		No. in Group	Broncho-pneumonia		Suppurative Otitis Media		Deaths	
		No.	%	No.	%	No.	%		No.	%	No.	%	No.	%
0–2	95	15	15.8	20	21.0	4	4.2	106	16	15.1	7	16.0	4	3.8
2–3	53	3	5.6	9	16.9	1	1.9	67	5	7.4	7	10.4	3	4.5
3–4	32	1	3.1	5	15.6	—	—	40	1	2.5	4	10.0	—	—
4–5	23	3	13.0	1	4.3	—	—	31	2	6.4	3	9.7	—	—
5+	33	2	6.0	—	—	—	—	34	1	2.9	8	23.5	—	—

Discussion

In this investigation 236 patients with measles were treated with a vaccine prepared according to Wynn's formula, and a corresponding control series of 278 cases was treated on similar general routine lines without vaccine. The majority of the patients were under 5 years of age, the youngest being about 9 months old. The injections were without exception innocuous, and we did not observe any general febrile reaction which could reasonably be attributed to the vaccine. Slight local reactions were seen from time to time, but were rare.

An analysis of results shows that there has been no demonstrable diminution in the incidence of the two most common complications of measles—namely, bronchopneumonia and otitis media—nor has the mortality rate been affected to any appreciable extent. Mr. B. E. Spear of the statistical department of the London County Council, to whom I am indebted for the following report, states "that from the statistical point of view the results justify the negative conclusion reached as to the treatment." The claims made by Wynn as to the value of the vaccine in aborting pneumonic infections and in reducing the mortality rate have not been confirmed by this investigation in young children with measles as the primary infection. It is true that the total number of patients treated was relatively small, but one feels that no useful purpose would be served by the continuance of vaccine treatment in measles with the vaccine as at present constituted.

I wish to express my gratitude to Dr. H. Stanley Banks, medical superintendent of the Park Hospital (L.C.C.), for his advice and criticism, and for permission to publish this paper.

REFERENCE

Wynn, W. H. (1936). *British Medical Journal*, **1**, 45.

Clinical Memoranda

Slimming Drugs and Cataract

With Notes of a Case

During the past few years compounds of dinitrophenol have been used as metabolic stimulants in the treatment of obesity, especially in America. In 1935 Tainter, Stockton, and Cutting published results of treatment with 2:4-dinitrophenol in doses of 100 mg. daily for one week, then 200 mg. for several weeks, with gradual increase to 300 mg., followed by reduced doses if toxic symptoms occurred, such as dyspnoea, oedema, urticarial rashes, and prostration. They reported that no pathological changes were produced in the blood cholesterol, liver, or blood count in four years of treatment, and weight was reduced. Koch, Lee, and Tainter (1935) reported no changes in the liver or any other tissue in dogs killed by lethal doses.

In 1935 Horner, Jones, Boardman, and other authors published cases of cataract in human beings following this treatment. They found that after the first signs appeared the development was rapid. The cornea was normal; the aqueous showed a slight slit-lamp flare; the anterior capsule was spotty, dry, and lustreless; and fine grey subcapsular cloudy opacities were present. Later irregular pearl-grey opacities appeared deeper in the cortex, with polychromatic specular reflection from the posterior cortex. Marked swelling of the lens followed. The cause was thought to be increased permeability of the lens capsule. Secondary glaucoma sometimes occurred.

In October, 1936, Whalman, in Los Angeles, published notes of forty cases with details of twenty-seven cases of cataract in obese females (average weight 200 lb.) from 25 to 50 years of age. All lost considerable weight. Maturation occurred in from seven days to six months, the average being six weeks. Needling followed by linear extraction gave good results. The daily dose was from 100 mg. to 500 mg., and the period of treatment varied from one to eighteen months. The cataract is always bilateral, though usually more advanced in one eye than in the other.

CASE HISTORY

On January 27, 1937, I saw a young woman aged 28, weighing 144 lb. She complained of failing sight in the left eye for a fortnight. The vision was: right eye 6/12, left eye less than 6/60, not improved by glasses. The left eye showed a pearly swollen cataract with silvery sectors, and the right a fine punctate central lenticular opacity. None of the usual causes of cataract were present, and only close questioning elicited that she had been taking Messrs. Crookes's preparation "dekrysil"—that is, 4:6-dinitro-*o*-cresol—for three years for slimming purposes, and that it was successful in keeping the weight down. Dr. Havard told me that her original weight was 178 lb., and at one period it was reduced to 134 lb. For the first six months one capsule a day was taken, and then two, with occasional intermissions of one month if tachycardia developed, or a slight yellow pigmentation of the conjunctivae. Calcium-sodium iodide ointment was prescribed, and abundant fruit and vegetables rich in vitamin C, and then, on Professor Dodds's kind suggestion, ascorbic acid. No improvement took place, and by February 22 the right eye was blind as well. On March 3 the left eye was needled, and on March 17 a linear extraction was done. Convalescence was uneventful, and on April 2 with + 11 D sph. + 1 D cyl./45° the vision was 6/9 partly. A capsular needling may be needed later.

It is difficult to prove that these cataracts are directly due to dinitrophenol products, but though the number of women taking them is very large it seems that the proportion developing cataract is too great for mere coincidence. The absence of lenticular changes in dogs given lethal doses may indicate that the time factor is important. To prove the connexion statistically one would have to show that in females of these age classes the proportion developing cataract was greater in those taking these drugs than in the general population of *obese* females of these age classes. Perhaps one should limit the classes to *obese* females, and I do not know that such statistics are available. On the other hand one knows that, apart from congenital, diabetic, or other severe general disease and traumatic cases, cataract in young women is very rare, and I think that most ophthalmologists would agree that when it occurs it is in poorly nourished feeble individuals, resembling those suffering from prolonged lactation, and not in a stout buxom type like the present case.

It is likely that more of these cases will occur in Britain, and it seems doubtful whether the use of preparations of the dinitrophenol type should be continued. Even though the results of extraction are good, it is a great drawback for a young woman to be dependent on cataract glasses for life.

I have to thank Messrs. Crookes for permission to name the preparation that was employed in this case.

HAMILTON E. QUICK, M.B., F.R.C.S.,
Honorary Ophthalmic Surgeon.
General and Eye Hospital, Swansea.

REFERENCES

Horner, W. D., Jones, R. B., and Boardman, W. W. (1935). *J. Amer. med. Ass.*, **105**, 108.
Koch, R. A., Lee, R. C. H., and Tainter, M. L. (1935). *Calif. West. Med.*, **43**, 337.
Tainter, M. L., Stockton, A. B., and Cutting, W. C. (1935). *J. Amer. med. Ass.*, **105**, 332.
Whalman, H. F. (1936). *Amer. J. Ophthal.*, Series 3, **19**, 835.

Recovery from Pneumococcal Meningitis

The following report of a case of recovery from pneumococcal meningitis may be of interest.

CASE RECORD

A girl aged 16 suffered a year ago from gonococcal infection. We were asked to see her on the evening of May 16, and on our arrival at 7.30 she was deeply unconscious. Her pupils were widely dilated; there was oedema of both optic disks; she had a temperature of 97° F., a pulse rate of 60, and her respirations were 20 a minute; superficial reflexes were absent; Kernig's sign was negative and her limbs were flaccid. Her mother informed us that on the previous evening she had complained of sore throat and severe frontal and bitemporal headache. She had also had several rigors. On the morning of May 16 the headache was still very bad, but the patient did not appear to be very ill. About 6.30 p.m. she brought up a green vomit, and by 7 o'clock she was unconscious.

In view of the clinical findings and of the previous history a gonococcal meningitis was considered not unlikely. Lumbar puncture revealed fluid under so great a pressure that much was lost, but probably between 20 and 30 c.cm. were removed before the normal rate of flow was established. Prontosil soluble was injected intramuscularly with a quarter of a grain of morphine. The cerebro-spinal fluid showed a cell count of approximately 7,000, and the cells were entirely polymorphonuclear leucocytes. Extracellular lanceolate diplococci were present in great numbers, and were provisionally diagnosed as pneumococci.

On the morning of May 17 the patient was conscious but quite blind, and she complained of intense headache and frequent vomiting. Prontosil was again administered intramuscularly and by the mouth. On the evening of the same day she was still very restless. Lumbar puncture was again performed, and the pressure, whilst still great, was obviously less than on the previous evening, and the cerebro-spinal fluid was much less turbid. Prontosil was again administered.

On May 18 her condition was improved, although she was still restless, blind, and incontinent of urine. Prontosil was continued in doses of four tablets a day by the mouth, and the pressure was again restored to normal by lumbar puncture.

Dr. Howel Evans of Liverpool reported on the cerebro-spinal fluid as follows: "Protein +++, cells approximately 7,500 per c.mm. All polynuclears. Films show a few badly degenerated cocci, morphologically resembling pneumococci. Your own stained films are the best, and I agree that the organism appears to be a pneumococcus. The precipitin test is positive against the pneumococcus Type I, negative against the meningococcus. Cultures remained sterile for twenty-four hours. This may be due to autolysis owing to delay (Bank Holiday week-end). I think the presumptive evidence is in favour of a pneumococcal infection, and I regard the prognosis as very bad."

On May 19 the patient's condition was definitely very much improved. There was no vomiting, the pulse and temperature were normal, the headache less frequent, vision fully returned, and she asked for bacon and eggs. Prontosil was still given. Her progress from that time was uneventful, and by May 25 she had completely recovered.

The suddenness of the onset and the presence of green pus at the bottom of our centrifuge tubes appeared to point to a rapidly fatal issue. Prontosil was given because the pneumococcus is not far removed biologically from a streptococcus, but principally for the sake of doing something. Whether the successful issue was due to this agent or to the repeated cerebro-spinal drainage it is impossible to say.

J. R. CALDWELL.
P. S. BYRNE.
Milnthorpe, Westmorland.

Reviews

BRITISH ENCYCLOPAEDIA OF MEDICINE

The British Encyclopaedia of Medical Practice, including Medicine, Surgery, Obstetrics, Gynaecology and other Subjects. Under the General Editorship of Sir Humphry Rolleston, Bt., G.C.V.O. Vol. 3. Cataract to Diaphragm Diseases. (Pp. 681; illustrated. 35s. per vol.) London: Butterworth and Co. 1937.

The third volume of this encyclopaedia includes the subject-headings from cataract to diaphragm diseases. The list of authors contributing is a representative one, and the present volume keeps up the high standard set in the two that have appeared already. The problems of early life, child welfare and health, dentition and child guidance from the psychological point of view, coeliac disease and convulsions in infancy and childhood, receive attention from experts in the subject; while the phenomena and management of the climacteric in women and in men are dealt with by two of the senior editors, Professor James Young and Sir Humphry Rolleston respectively. Among the neurological subjects cerebellar diseases and cerebral diplegia are in the capable hands of another editor, Dr. F. M. R. Walshe, who is also responsible for the article on affections of the cranial nerves. The sections on sudden and unexpected death, and the relation and responsibilities of the profession to coroners and inquests are informative and valuable, presenting in a useful summary the legal aspects of these matters. The question whether or not to report a death to the coroner often puzzles medical men even of long experience; the indications given by Dr. Temple Grey will be of great help in answering this question, and his remarks on the need for clarity in filling up death certificates should be noted, since the registrar may be unable to accept as a cause of death some of a string of diseases unless their sequence, their interrelation, and the actual cause of death is clearly stated.

Of the general medical diseases, cholera, chicken-pox, and cerebro-spinal fever are fully dealt with, and Dr. J. G. Greenfield has made a valuable addendum to the last in discussing the chemistry and bacteriology of the cerebro-spinal fluid. Sir Arthur Hurst's articles on constipation, colitis, and carcinoma of the colon give a clear and succinct picture of the subjects. In the treatment of ulcerative colitis there is considerable discrepancy between the results obtained in general hospitals and in private clinics. Care and nursing affect the result, but antecedent conditions of the patient must bear largely also. There is not yet any consensus of opinion as to specific therapy. A general article on coma, its causes and the methods to be adopted in dealing with cases, is noteworthy. The companion article on concussion and compression by Mr. L. R. Broster amplifies certain points. Surgeon Commander MacLeod has brought into small space all the essential facts about colour vision, its abnormalities, and the means of detecting the colour-blind. The article ends with a summary of present-day theories of colour vision. There are a number of specialist subjects included in this volume, some on eye diseases and some on tropical diseases. The informative articles on cyanosis and infections with coliform bacilli are of more general interest. It is important in the latter to take a wide view of the patient and his complaint; the routine administration of urinary antiseptics without full investigation of the state of the urinary tract and without excluding any local focus of infection and reinfection cannot be successful. Mr. Clifford Morson insists on these points but is rather pessimistic about means of cure.

This volume is, like the preceding ones, well produced and carefully edited. The marginal subheadings give easy guidance for rapid consultation without breaking the continuity of the article to be read as a whole. Printer's errors are rare; in this volume we have noted them only on pages 153, 511, and 585.

NEUROLOGY IN ANCIENT GREECE

Etapes de la Neurologie dans l'Antiquité Grecque (D'Homère à Galien). By A. Souques. (Pp. 248. 45 fr.) Paris: Masson et Cie. 1936.

Dr. Souques's scholarly work is divided into seven chapters, corresponding to the stages through which neurology has passed—namely, the period from Homer to Hippocrates, the Hippocratic period, the age of Aristotle, Herophilus and Erasistratus, Greek medicine in Rome, the age of Galen, and the post-Galenic period down to the Middle Ages.

In the Homeric Age nothing was known as to the anatomy of the nervous system apart from the fact that the brain was in the skull and the spinal cord in the vertebral column. The physiology of the brain was also unknown at that time, sensation being located in the organs of the thorax and abdomen, and especially in the heart. As regards Hippocrates, although he had no knowledge of anatomy or physiology, his clinical knowledge was little short of miraculous for the time in which he lived, as is shown by his discovery of paralysis on the opposite side to the lesion in the brain, his account of traumatic and otogenic meningitis, his cure of amaurosis by trephining, and his description of apoplexy, generalized and partial epilepsy, ophthalmic migraine, tetanus, cerebral symptoms in alcoholism, hereditary disposition to nervous diseases, periodicity of certain psychoses, Pott's disease, diphtheritic paralysis, sciatica, etc.

In the period between Hippocrates and the Alexandrian anatomists Aristotle was the leading figure. Though an eminent zoologist and the founder of comparative anatomy, his dissections were confined to animals. He had no knowledge of the peripheral nerves, and regarded the brain and spinal cord as different in nature. It was left for Herophilus and Erasistratus of Alexandria, by their dissections of human subjects, to give the first description of the anatomy and physiology of the nervous system in man. The cardiac theory of sensation which had been held since the Homeric Age was overthrown, and until the seventeenth century none of their successors made any important contributions to the anatomy of the nervous system.

In the chapter on Greek medicine in Rome Dr. Souques states that knowledge of the anatomy and physiology of the nervous system remained stationary, whereas considerable progress was made in the study of nervous and mental disease, in which Asclepiades, Themison, Archigenes, Rufus of Ephesus, and most of all Celsus, Aretaeus, and Soranus made important contributions. There is no mention, however, in any of their writings of tabes, disseminated sclerosis, amyotrophic lateral sclerosis, and many other diseases of the central or peripheral nervous system. Galen is described by Dr. Souques as a clinician of value, a valuable anatomist, and an experimenter of genius, who does not deserve the oblivion into which his work has fallen. He was guilty,

In October, 1936, Whalman, in Los Angeles, published notes of forty cases with details of twenty-seven cases of cataract in obese females (average weight 200 lb.) from 25 to 50 years of age. All lost considerable weight. Maturation occurred in from seven days to six months, the average being six weeks. Needling followed by linear extraction gave good results. The daily dose was from 100 mg. to 500 mg., and the period of treatment varied from one to eighteen months. The cataract is always bilateral, though usually more advanced in one eye than in the other.

CASE HISTORY

On January 27, 1937, I saw a young woman aged 28, weighing 144 lb. She complained of failing sight in the left eye for a fortnight. The vision was: right eye 6/12, left eye less than 6/60, not improved by glasses. The left eye showed a pearly swollen cataract with silvery sectors, and the right a fine punctate central lenticular opacity. None of the usual causes of cataract were present, and only close questioning elicited that she had been taking Messrs. Crookes's preparation "dekrysil"—that is, 4:6-dinitro-*o*-cresol—for three years for slimming purposes, and that it was successful in keeping the weight down. Dr. Havard told me that her original weight was 178 lb., and at one period it was reduced to 134 lb. For the first six months one capsule a day was taken, and then two, with occasional intermissions of one month if tachycardia developed, or a slight yellow pigmentation of the conjunctivae. Calcium-sodium iodide ointment was prescribed, and abundant fruit and vegetables rich in vitamin C, and then, on Professor Dodds's kind suggestion, ascorbic acid. No improvement took place, and by February 22 the right eye was blind as well. On March 3 the left eye was needled, and on March 17 a linear extraction was done. Convalescence was uneventful, and on April 2 with + 11 D sph. + 1 D cyl./45° the vision was 6/9 partly. A capsular needling may be needed later.

It is difficult to prove that these cataracts are directly due to dinitrophenol products, but though the number of women taking them is very large it seems that the proportion developing cataract is too great for mere coincidence. The absence of lenticular changes in dogs given lethal doses may indicate that the time factor is important. To prove the connexion statistically one would have to show that in females of these age classes the proportion developing cataract was greater in those taking these drugs than in the general population of *obese* females of these age classes. Perhaps one should limit the classes to *obese* females, and I do not know that such statistics are available. On the other hand one knows that, apart from congenital, diabetic, or other severe general disease and traumatic cases, cataract in young women is very rare, and I think that most ophthalmologists would agree that when it occurs it is in poorly nourished feeble individuals, resembling those suffering from prolonged lactation, and not in a stout buxom type like the present case.

It is likely that more of these cases will occur in Britain, and it seems doubtful whether the use of preparations of the dinitrophenol type should be continued. Even though the results of extraction are good, it is a great drawback for a young woman to be dependent on cataract glasses for life.

I have to thank Messrs. Crookes for permission to name the preparation that was employed in this case.

HAMILTON E. QUICK, M.B., F.R.C.S.,
Honorary Ophthalmic Surgeon.
General and Eye Hospital, Swansea.

REFERENCES

Horner, W. D., Jones, R. B., and Boardman, W. W. (1935). *J. Amer. med. Ass.*, **105**, 108.
Koch, R. A., Lee, R. C. H., and Tainter, M. L. (1935). *Calif. West. Med.*, **43**, 337.
Tainter, M. L., Stockton, A. B., and Cutting, W. C. (1935). *J. Amer. med. Ass.*, **105**, 332.
Whalman, H. F. (1936). *Amer. J. Ophthal.*, Series 3, **19**, 835.

Recovery from Pneumococcal Meningitis

The following report of a case of recovery from pneumococcal meningitis may be of interest.

CASE RECORD

A girl aged 16 suffered a year ago from gonococcal infection. We were asked to see her on the evening of May 16, and on our arrival at 7.30 she was deeply unconscious. Her pupils were widely dilated; there was oedema of both optic disks; she had a temperature of 97° F., a pulse rate of 60, and her respirations were 20 a minute; superficial reflexes were absent; Kernig's sign was negative and her limbs were flaccid. Her mother informed us that on the previous evening she had complained of sore throat and severe frontal and bitemporal headache. She had also had several rigors. On the morning of May 16 the headache was still very bad, but the patient did not appear to be very ill. About 6.30 p.m. she brought up a green vomit, and by 7 o'clock she was unconscious.

In view of the clinical findings and of the previous history a gonococcal meningitis was considered not unlikely. Lumbar puncture revealed fluid under so great a pressure that much was lost, but probably between 20 and 30 c.cm. were removed before the normal rate of flow was established. Prontosil soluble was injected intramuscularly with a quarter of a grain of morphine. The cerebro-spinal fluid showed a cell count of approximately 7,000, and the cells were entirely polymorphonuclear leucocytes. Extracellular lanceolate diplococci were present in great numbers, and were provisionally diagnosed as pneumococci.

On the morning of May 17 the patient was conscious but quite blind, and she complained of intense headache and frequent vomiting. Prontosil was again administered intramuscularly and by the mouth. On the evening of the same day she was still very restless. Lumbar puncture was again performed, and the pressure, whilst still great, was obviously less than on the previous evening, and the cerebro-spinal fluid was much less turbid. Prontosil was again administered.

On May 18 her condition was improved, although she was still restless, blind, and incontinent of urine. Prontosil was continued in doses of four tablets a day by the mouth, and the pressure was again restored to normal by lumbar puncture.

Dr. Howel Evans of Liverpool reported on the cerebro-spinal fluid as follows: "Protein + + +, cells approximately 7,500 per c.mm. All polynuclears. Films show a few badly degenerated cocci, morphologically resembling pneumococci. Your own stained films are the best, and I agree that the organism appears to be a pneumococcus. The precipitin test is positive against the pneumococcus Type I, negative against the meningococcus. Cultures remained sterile for twenty-four hours. This may be due to autolysis owing to delay (Bank Holiday week-end). I think the presumptive evidence is in favour of a pneumococcal infection, and I regard the prognosis as very bad."

On May 19 the patient's condition was definitely very much improved. There was no vomiting, the pulse and temperature were normal, the headache less frequent, vision fully returned, and she asked for bacon and eggs. Prontosil was still given. Her progress from that time was uneventful, and by May 25 she had completely recovered.

The suddenness of the onset and the presence of green pus at the bottom of our centrifuge tubes appeared to point to a rapidly fatal issue. Prontosil was given because the pneumococcus is not far removed biologically from a streptococcus, but principally for the sake of doing something. Whether the successful issue was due to this agent or to the repeated cerebro-spinal drainage it is impossible to say.

J. R. CALDWELL.
P. S. BYRNE.
Milnthorpe, Westmorland.

Reviews

BRITISH ENCYCLOPAEDIA OF MEDICINE

The British Encyclopaedia of Medical Practice, including Medicine, Surgery, Obstetrics, Gynaecology and other Subjects. Under the General Editorship of Sir Humphry Rolleston, Bt., G.C.V.O. Vol. 3. Cataract to Diaphragm Diseases. (Pp. 681; illustrated. 35s. per vol.) London: Butterworth and Co. 1937.

The third volume of this encyclopaedia includes the subject-headings from cataract to diaphragm diseases. The list of authors contributing is a representative one, and the present volume keeps up the high standard set in the two that have appeared already. The problems of early life, child welfare and health, dentition and child guidance from the psychological point of view, coeliac disease and convulsions in infancy and childhood, receive attention from experts in the subject; while the phenomena and management of the climacteric in women and in men are dealt with by two of the senior editors, Professor James Young and Sir Humphry Rolleston respectively. Among the neurological subjects cerebellar diseases and cerebral diplegia are in the capable hands of another editor, Dr. F. M. R. Walshe, who is also responsible for the article on affections of the cranial nerves. The sections on sudden and unexpected death, and the relation and responsibilities of the profession to coroners and inquests are informative and valuable, presenting in a useful summary the legal aspects of these matters. The question whether or not to report a death to the coroner often puzzles medical men even of long experience; the indications given by Dr. Temple Grey will be of great help in answering this question, and his remarks on the need for clarity in filling up death certificates should be noted, since the registrar may be unable to accept as a cause of death some of a string of diseases unless their sequence, their interrelation, and the actual cause of death is clearly stated.

Of the general medical diseases, cholera, chicken-pox, and cerebro-spinal fever are fully dealt with, and Dr. J. G. Greenfield has made a valuable addendum to the last in discussing the chemistry and bacteriology of the cerebro-spinal fluid. Sir Arthur Hurst's articles on constipation, colitis, and carcinoma of the colon give a clear and succinct picture of the subjects. In the treatment of ulcerative colitis there is considerable discrepancy between the results obtained in general hospitals and in private clinics. Care and nursing affect the result, but antecedent conditions of the patient must bear largely also. There is not yet any consensus of opinion as to specific therapy. A general article on coma, its causes and the methods to be adopted in dealing with cases, is noteworthy. The companion article on concussion and compression by Mr. L. R. Broster amplifies certain points. Surgeon Commander MacLeod has brought into small space all the essential facts about colour vision, its abnormalities, and the means of detecting the colour-blind. The article ends with a summary of present-day theories of colour vision. There are a number of specialist subjects included in this volume, some on eye diseases and some on tropical diseases. The informative articles on cyanosis and infections with coliform bacilli are of more general interest. It is important in the latter to take a wide view of the patient and his complaint; the routine administration of urinary antiseptics without full investigation of the state of the urinary tract and without excluding any local focus of infection and reinfection cannot be successful. Mr. Clifford Morson insists on these points but is rather pessimistic about means of cure.

This volume is, like the preceding ones, well produced and carefully edited. The marginal subheadings give easy guidance for rapid consultation without breaking the continuity of the article to be read as a whole. Printer's errors are rare; in this volume we have noted them only on pages 153, 511, and 585.

NEUROLOGY IN ANCIENT GREECE

Etapes de la Neurologie dans l'Antiquité Grecque (D'Homère à Galien). By A. Souques. (Pp. 248. 45 fr.) Paris: Masson et Cie. 1936.

Dr. Souques's scholarly work is divided into seven chapters, corresponding to the stages through which neurology has passed—namely, the period from Homer to Hippocrates, the Hippocratic period, the age of Aristotle, Herophilus and Erasistratus, Greek medicine in Rome, the age of Galen, and the post-Galenic period down to the Middle Ages.

In the Homeric Age nothing was known as to the anatomy of the nervous system apart from the fact that the brain was in the skull and the spinal cord in the vertebral column. The physiology of the brain was also unknown at that time, sensation being located in the organs of the thorax and abdomen, and especially in the heart. As regards Hippocrates, although he had no knowledge of anatomy or physiology, his clinical knowledge was little short of miraculous for the time in which he lived, as is shown by his discovery of paralysis on the opposite side to the lesion in the brain, his account of traumatic and otogenic meningitis, his cure of amaurosis by trephining, and his description of apoplexy, generalized and partial epilepsy, ophthalmic migraine, tetanus, cerebral symptoms in alcoholism, hereditary disposition to nervous diseases, periodicity of certain psychoses, Pott's disease, diphtheritic paralysis, sciatica, etc.

In the period between Hippocrates and the Alexandrian anatomists Aristotle was the leading figure. Though an eminent zoologist and the founder of comparative anatomy, his dissections were confined to animals. He had no knowledge of the peripheral nerves, and regarded the brain and spinal cord as different in nature. It was left for Herophilus and Erasistratus of Alexandria, by their dissections of human subjects, to give the first description of the anatomy and physiology of the nervous system in man. The cardiac theory of sensation which had been held since the Homeric Age was overthrown, and until the seventeenth century none of their successors made any important contributions to the anatomy of the nervous system.

In the chapter on Greek medicine in Rome Dr. Souques states that knowledge of the anatomy and physiology of the nervous system remained stationary, whereas considerable progress was made in the study of nervous and mental disease, in which Asclepiades, Themison, Archigenes, Rufus of Ephesus, and most of all Celsus, Aretaeus, and Soranus made important contributions. There is no mention, however, in any of their writings of tabes, disseminated sclerosis, amyotrophic lateral sclerosis, and many other diseases of the central or peripheral nervous system. Galen is described by Dr. Souques as a clinician of value, a valuable anatomist, and an experimenter of genius, who does not deserve the oblivion into which his work has fallen. He was guilty,

however, of several great errors, which were chiefly due to the fact that he dissected animals only and did not always carry out their dissection with sufficient care. On the other hand he discovered the recurrent laryngeal nerves and the motor and sensory roots of the nerves, and was the founder of experimental physiology and psychology.

In the period following Galen, which extends down to the Middle Ages, no important discovery in neurology was made and no pre-eminent medical figures stand out. The age was merely one of compilers, of whom the best known were Oribasius and Paulus Aegineta.

DIET AND DIETETICS

Modern Dietary Treatment. By Margery Abrahams, M.A., M.Sc., and Elsie M. Widdowson, B.Sc., Ph.D. (Pp. 328. 8s. 6d.) London: Baillière, Tindall and Cox. 1937.

Dietetics Simplified. The Use of Foods in Health and Disease. By L. Jean Bogert, Ph.D. With Laboratory Section by Mame T. Porter, M.A. (Pp. 637. 12s. 6d. net.) London: Macmillan and Co. 1937.

Books on diet follow each other thick as leaves in Vallombrosa. Many are tendentious and incomplete, and few do more than provide work for the printer and relief for the inner tensions of the authors. It is a pleasure therefore to review two books on diet which are sober and up to date and which should be able to look forward to a long life of usefulness. *Modern Dietary Treatment,* by Miss M. Abrahams and Dr. Elsie M. Widdowson, is a short handbook on diet as used in medical treatment. It is essentially practical, and of its 300 pages some 200 are given over to diet lists and tables. After a brief description of the constituents of a normal diet and the principles of nutrition the authors proceed to give lists and examples of the great majority of the diets used in medical treatment. Then follow recipes, tables of the chemical composition of foods, biological and metabolic data, and a bibliography. This book can be strongly recommended to medical practitioners and students, nurses and hospital dietitians. There is no other small handbook in the English language with so much accurate information about diets and so little verbiage, and it will be greeted with joy by all those who have struggled to translate menus consisting of crackers, egg-plant, and squash into English practice. Infant feeding is rightly omitted. Short as the introduction is, some reference should be made to the important conception of "conditioned deficiencies." The section on low salt diets might be expanded to include the dehydrating diets which have been used for tuberculosis, rheumatism, migraine, and vertigo. There is no mention of allergy or elimination diets, and the section on acid and basic ash diets is too brief.

Dietetics Simplified must have been a labour of love, otherwise we cannot see how Dr. L. Jean Bogert, Miss M. T. Porter, and the publishers could have produced this detailed, well-illustrated, and well-indexed book at so low a price. It is a complete description of the use of foods in health and sickness, and is divided into four parts. The first part deals with the principles of metabolism and nutrition; the second part with diet in normal conditions, paying special attention to pregnancy and lactation, infancy and childhood, old age, racial differences in habits of feeding, and the construction of family dietaries. The third part gives a complete range of diets for use in disease, and the fourth part is composed of laboratory lessons in cooking, recipes, and tables. The book is therefore a textbook of dietetics, but though it is especially addressed to dietitians it is also considered suitable for the student of home economics and the intelligent housewife. A good deal of information that is scattered through textbooks of physiology, pathology, and medicine is here presented with order and balance, and though some of us may not have quite as much faith as the authors in the effects of satisfactory alimentation, it is a fine and inspiring book. The conception of the doctor as a cross between a Red Indian and Sherlock Holmes, and the associated over-emphasis on clinical diagnosis, die hard in English medical schools. The Germans in their efforts to swallow naturopathy intact have perhaps gone to the other extreme, but it is well to remember that lay people are more interested in prophylaxis and symptomatic treatment than in diagnosis. We hope we shall not be considered neo-Germanic if we suggest that some of the time spent in watching operations or in discussing the differential diagnosis of incurable disease might be better spent in a course of dietetics, and students could hardly begin better than with Bogert and Porter.

PHYSICAL TRAINING

Anatomy and Physiology of Physical Training. By Major R. W. Galloway, *D.S.O.*, M.B., Ch.B., R.A.M.C. (Pp. 182; 42 figures. 6s. net.) London: E. Arnold and Co. 1937.

Experiments in Homework and Physical Education. By A. Sutcliffe, M.A., B.Sc., and J. W. Canham, M.A. (Pp. 194; illustrated. 4s. 6d.) London: John Murray, 1937.

Health and Muscular Habits. By Lieut.-Colonel J. K. McConnel, *D.S.O.*, *M.C.*, and F. W. W. Griffin, M.A., M.D. Foreword by Lord Horder, K.C.V.O., M.D., F.R.C.P. (Pp. 159; 27 figures. 5s.) London: J. and A. Churchill. 1937.

In his small book Major Galloway seeks to instruct teachers of physical training in the elements of anatomy and physiology and their application to a scientific system of training. An introduction is contributed by Professor Cathcart. The chapters on muscular action are clear and well illustrated if somewhat anatomical in detail, and the book as a whole suceeds in its object. Short descriptions of the principles of anatomy and physiology must necessarily be inadequate, and open to the criticisms which apply to the handbooks of the Red Cross and St. John Ambulance type. The chapter on corrective exercises, in which the treatment of spinal curvature and the like is described, brings to mind the proverb that a little learning may be dangerous. There is too great a tendency in these days of physical training enthusiasm to assume that the correction of physical defects is the province of the physical trainer rather than that of the doctor. This point might well be more emphasized in future editions. Of the many problems of education there is probably none engaging more attention at the present time than the relative importance of the physical to the mental side and the proper adjustment of the time factor between them.

Readers of *Experiments in Homework and Physical Education* by Messrs. Sutcliffe and Canham will find an interesting account of a series of tests for mental and physical efficiency and their application, designed to throw light on this problem. The results arrived at make no claim to be decisive, but indicate good reason for a preference in favour of reading as opposed to writing in homework, and for something more than two periods a week in school hours for physical training. The careful and scientific approach to the subject and the reasoned restraint of the conclusions arrived at deserve the highest praise.

There could be no better review of the little book *Health and Muscular Habits*, by Lieut.-Colonel J. K. McConnell and Dr. F. W. W. Griffin than that contained in the short preface by Lord Horder. The book aims at interesting the individual and the value of increasing health by cultivating balance of body and correcting bad habits of posture. It is written in an attractive style with simple diagrams easily understood, and is free from the customary set exercises which so often call to mind the gymnasium and drill instructor. Body balance and grace of movement are not only a pleasure to possess and a delight to behold, but also exert a mental stimulus which is not easily overestimated. There are few who could not read this book with advantage, and we commend it most heartily to all.

EXCHANGE OF BODY FLUIDS

Body Water. The Exchange of Fluids in Man. By John P. Peters, M.D. (Pp. 405. 18s.) London: Baillière, Tindall and Cox.

This monograph, by Professor J. P. Peters of Yale, deals with some of the most obscure problems in human physiology. The first half is concerned with the exchange of water between the blood, the tissues, and the interstitial fluids; the second half chiefly with renal activity. The author has devoted many years to experimental work on the distribution of solutes and water in the human body, and the present volume is an attempt to assemble his ideas in the form of a coherent story. The result is a masterly review of an extremely difficult subject. The fact that there is no really adequate explanation of the causes of oedema is fairly well known, but Professor Peters makes it clear that the manner in which the occurrence of oedema in the normal body is prevented is equally mysterious. Many ideas have been advanced to explain the production of lymph and its final return to the circulation; they all account for a considerable proportion of the facts, but usually finish by evoking some process outside the known laws of physical chemistry, and not infrequently one finds explanations, couched in the more rigorous terms of physico-chemistry, which contain, buried discreetly in the midst of formulae, some physico-chemical equivalent of the assumption of perpetual motion. The author has successfully avoided such pseudo-explanations, for he realizes that until the qualitative nature of a process is roughly understood there is little advantage in attempting to express it in mathematical terms, and he therefore avoids the use of elaborate mathematics.

The uncertainties and apparent contradictions that characterize our present state of knowledge of lymph formation and urine excretion are frankly recognized, and the author makes an attempt to throw light upon difficult problems instead of merely evading them. Recognition of the extreme complexity of his subject naturally makes all the conclusions tentative and incomplete, but raises the monograph into the select class of works which are calculated to stimulate further research.

Notes on Books

Dr. T. WILSON PARRY, who is in active practice in North London, is well known as the authority on prehistoric trephining. For many years he has contributed poems—things grave and gay—to the *Cambridge Medical Society Magazine* and to the *St. George's Hospital Gazette*. There was some danger of these little works of art becoming fugitive pieces. Fortunately he has been persuaded to collect them, and they now appear under the title of *Immortal Names and other Poems*. They are well worthy of preservation and will give pleasure to every lover of poetry. They show, incidentally, how a medical man can dissipate professional cares by cultivating the Muses. The book is published by the Mitre Press at 5s.

Another instalment of the *Collected Papers* of the Walter and Eliza Hall Institute of Research in Pathology and Medicine, Melbourne, of which Dr. C. H. Kellaway is the director, has now been published in a single volume, covering the years 1935 and 1936. The thirty-five papers are reprints from various medical journals in Australia, Great Britain, and the United States.

Weight Reduction Diet and Dishes, by Dr. E. E. CLAXTON, with recipes by LUCY BURDEKIN, is published by Heinemann at 8s. 6d. This joint book goes into the subject in full practical detail. It deals with the treatment of obesity by exact calorific diets, enforced by a weighing scale for food and abundance of exact diet recipes. No patient who has the energy to follow the detailed instructions will fail to lose weight. The arrangement of the diets and recipes is good and the methods follow well-established lines and principles. The first chapter on famous fat men in history is interesting and amusing.

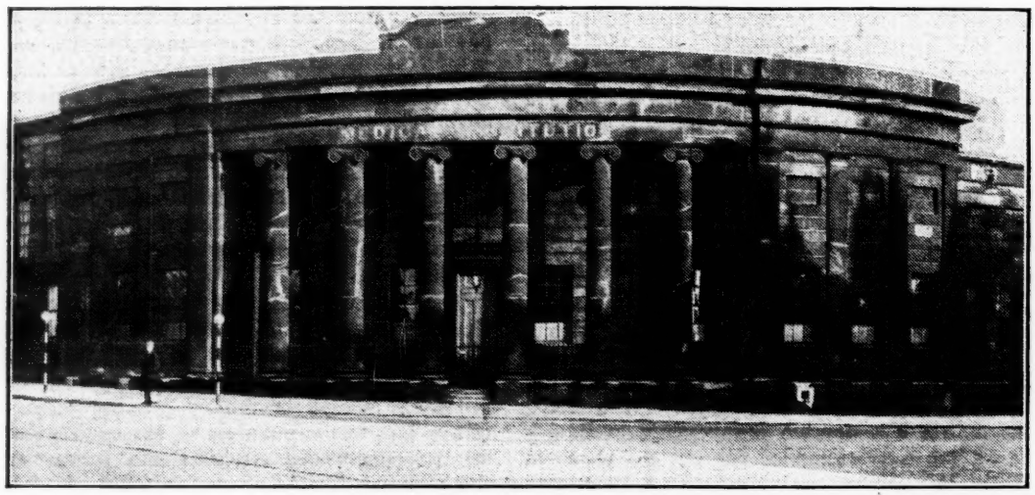
Although invented over forty years ago, it is only recently that the cathode-ray tube has become an indispensable piece of electrical apparatus. The advent of television, with the adoption of the cathode-ray tube for its reception, has led to improvement in its design and reduction in its cost, so that it is now no longer confined to laboratory use. *The Low Voltage Cathode Ray Tube* (Chapman and Hall, 10s. 6d.) is written by Mr. G. PARR, an engineer on the staff of the Edison Swan Electric Company, and it deals thoroughly with construction, operation, and applications. To all interested in the cathode-ray tube as a means of recording bio-electrical phenomena this book can be recommended because it will give them a sound grounding in the physics and construction of these tubes, which obviously have a big future before them. Only pages 124 to 126 have any direct reference to medicine, and here a brief description of the cathode-ray oscillographic electrocardiograph is given. Mr. Parr's book must therefore be considered as suitable only for those who are taking up the study of the physics of these tubes.

In her pamphlet on *Diphtheria and Constitution* (Leipzig: Georg Thieme, RM. 1.60), based on the study of 554 cases of diphtheria which occurred in the Children's Tuberculosis Clinic at Scheidegg from 1926 to 1935, Dr. FRIEDA BÖHNING comes to the conclusion that children with the lymphatic and exudative constitution are more prone to attacks of diphtheria than others, although the severity of the attack is not affected by the character of the constitution.

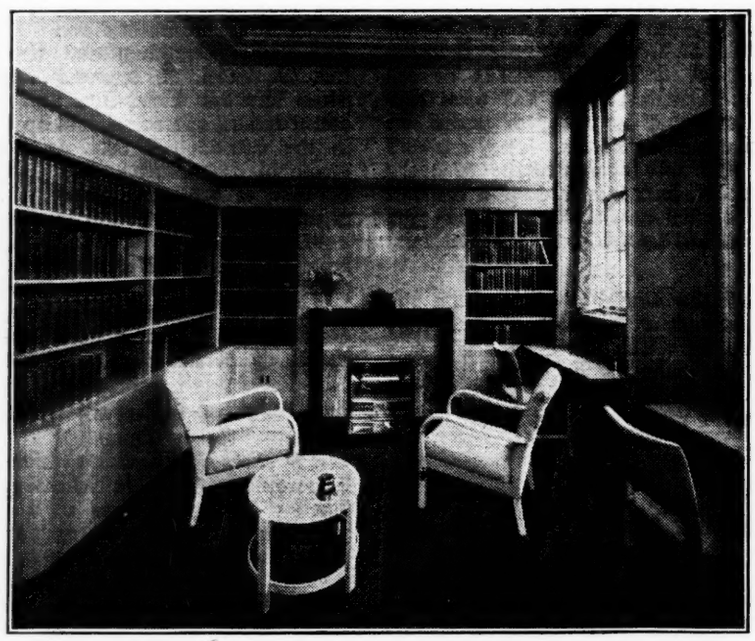
The greater portion of the *Yearbook of the American Pharmaceutical Association* is occupied by an annual report on the progress of pharmacy. This consists of a series of abstracts from pharmaceutical journals and also from chemical and medical journals. From the point of view of the medical scientist the special value of the report is that it covers many publications which are not included in indexes of medical literature, and the provision of short abstracts is of particular value when the journals referred to are difficult of access.

CENTENARY OF LIVERPOOL MEDICAL INSTITUTION

Centenaries interest primarily those who celebrate them, but the historic figures brought to mind by the events of May 30 to June 1 in Liverpool are the heritage of the whole profession. One hundred years ago John Rutter founded the Liverpool Medical Institution "to give more systematic direction to scientific inquiry, to promote calm, temperate, and reiterated discussion amongst those who practise and advance the art of medicine, and to remove hindrances to progress in the great cause of public health." On May 31, 1837, the classical building, in which it is still housed, was opened. On May 30, 1937, celebrations of this event began in Liverpool Cathedral. The Presidents of the British Medical Association, General Medical Council, and the Royal College of Surgeons were there, as well as the Lord Mayor of Liverpool and the Vice-Chancellor of the University. A sermon by the Bishop of Glasgow summed up in a word the changes in medicine and theology that the century has seen, and presented the need for a stand for freedom of thought in both religion and science in the face of the claims of the totalitarian state. The Guild of St. Luke, St. Cosmas and St. Damien met for Benediction on the site of the new Roman Catholic Cathedral.



The Liverpool Medical Institution



Hugh Owen Thomas and Robert Jones Memorial Library of Orthopaedic Surgery

On Monday, the 31st, a hundred years to a day from the first meeting of the Liverpool Medical Institution, there was a crowded gathering to witness the conferring of honorary membership upon distinguished guests. The latter were presented with happily appropriate references to their claims to honour by Emeritus Professor John Hay. In addition to Sir Cuthbert Wallace, Sir Norman Walker, Sir Farquhar Buzzard, and Sir Ewen Maclean, official representatives of the great corporations with which their names are so honourably linked, a very pleasing tribute was paid to the profession in Manchester in the person of the President of the Manchester Medical Society, Professor Fletcher Shaw. Perhaps, however, there was the greatest enthusiasm for similar honours paid to members of the Institution itself, Sir James Barr, a member since 1874, Mr. Frank T. Paul, since 1875, and Mr. Thurstan Holland, since 1888. Ill-health unfortunately prevented the presence of the first-mentioned two. Professor Hay referred to the great services these men had rendered to the profession, both in scientific contributions to our knowledge and in the medico-political field. To many present at the ceremony a reminder of their personal gifts of charm and character was unnecessary. Dr. Hugh Clarke received — again "in absentia" unfortunately — the congratulations of the Institution on completing fifty years of membership, and warm tributes were paid to his personal qualities and notable public services by Dr. W. B. Bennett and Dr. A. E. Hodgson.

Medical Journalism a Hundred Years Ago

Then followed a stimulating address by the President for the centenary year, Professor R. E. Kelly, on the sub-

ject of "Surgery 100 Years Ago." Professor Kelly sketched the social atmosphere in which the surgeon of those days lived, the interests of intelligent men of his time, and the course of his career before he reached the staff of the infirmary or dispensary. He alluded at some little length to the two great surgeons of the end of the eighteenth century, Henry Park and Edward Alanson, who were famous as pioneers in the excision of joints and in the perfection of amputation technique respectively. Alanson was also to be remembered for his advocacy of country hospitals, iron bedsteads, clean linen, and open windows. To these two men, with a third surgeon called Lyon, came the idea of forming a reading club about 1770, and from this seed through many vicissitudes there came to full fruition ultimately the Liverpool Medical Institution. Most entertaining were Professor Kelly's references to the medical literature of 100 years ago. His extracts from the *Lancet* gave a telling picture of the hard-hitting methods of medical controversy in those days, and incidentally threw a strong light on the fearless policy of the Editor in exposing practices that brought discredit on the profession no matter what the standing of those whom it might be necessary to attack.

The warm appreciation of his audience was expressed by Dr. Stallybrass and Mr. G. C. E. Simpson, ex-presidents of the Institution. Before the end of the meeting the honorary treasurer, Dr. Arthur Gemmell, made an appeal for subscriptions to a Centenary Fund to provide for heavy capital expenditure which town planning might soon make necessary. A sum of £5,000 was aimed at, donations towards which would be very welcome from all friends of the Institution.

In the evening there was a banquet at the Adelphi Hotel, attended by many distinguished guests representative of all forms of public service on Merseyside, as well as by some 200 members. More than one of the excellent speeches which followed the banquet emphasized the need for closer and more active co-operation between voluntary and municipal medical services in securing adequate and efficient treatment of the sick.

Library of Orthopaedic Literature

Tuesday, June 1, saw the conclusion of the celebrations. In the afternoon Mr. Rowley Bristow, President of the British Orthopaedic Association, was invited to declare open a room in the Institution which has been entirely replanned as a library of orthopaedic literature "In memory of Hugh Owen Thomas and Robert Jones, the Founders of Orthopaedic Surgery." The impetus for this was provided by a collection of books on orthopaedics which was received in response to the Sir Robert Jones' Memorial Appeal. The new library is intended to gather from all corners of the world new works on the subject as they appear. By making such works available to succeeding generations interested in this specialty it is hoped to provide a permanent memorial to these two great sons of Liverpool in real harmony with their genius. Interesting reminiscences were given by Mr. T. R. W. Armour and Mr. Thurstan Holland of the days when orthopaedic surgery, as we now know it, was first being tried out in Owen Thomas's house, No. 11, Nelson Street, and Mr. Thurstan Holland revealed how it was only by the generosity and constant encouragement of Sir Robert Jones that he ever began the practice of radiology.

Later in the afternoon Mr. Rowley Bristow delivered the triennial Hugh Owen Thomas Memorial Lecture on "Fractures—Some Principles Restated." These principles, he said, might be briefly stated to be first reduction, second fixation pending union, and third protection during consolidation. Almost of equal importance, however, was attention to the injuries of soft parts which always accompanied a fracture, by exercise designed to prevent muscular atrophy during the period of fixation. Lack of care in this direction led to the dictum that inability after fracture was sometimes due not to the bony injury but to the treatment given. Examples were quoted of fractures where this care of the soft tissues was all-important, and *x*-ray slides illustrated special types of difficulty in reduction, as well as the prevention and treatment of secondary displacements. Mr. Bristow declared himself a whole-hearted believer in closed manipulative reduction in all but a few cases. He expressed a preference for the use of skeletal traction in all difficult cases in the lower limbs. In fractures of the neck of the femur he favoured pinning by the Sven Johanssen technique. He was accorded a hearty vote of thanks.

In the evening a most enjoyable reception was given by the Lord Mayor at the Town Hall to members and their guests, a very practical expression of the sympathy and interest he had shown throughout the proceedings.

THE ARRIVAL OF THE BASQUE CHILDREN AT THE PORT OF SOUTHAMPTON

BY

H. C. MAURICE WILLIAMS, M.R.C.S., L.R.C.P., D.P.H.

Medical Officer of Health and Port Medical Officer to the County Borough of Southampton

The arrival of the Spanish liner s.s. *Habana* on Saturday, May 22, at Southampton, with 4,056 refugee children on board from Bilbao, was an event of national interest and historical importance as the first occasion that a shipload of refugees has arrived in Great Britain. During the great war the Belgians who sought refuge in this country came in small parties. It is therefore of public health interest to record the procedure adopted by the Southampton Port Medical Service in dealing with this vessel and the disembarkation of the children to the camp that had been prepared for their reception at North Stoneham, on the outskirts of Southampton.

The first official notification of the vessel's departure from Bilbao was received during the morning of Friday, May 21, when the expected time of arrival was given as late on Saturday. Conferences had therefore to be arranged on the Friday and on Saturday morning with the immigration and customs authorities, the National Committee for Spanish Relief, the Southern Railway, and the shipping agents to discuss various details connected with the vessel's arrival.

On Saturday morning a wireless message from the vessel was received giving the state of health on board, and this message indicated that the children were suffering from severe sea-sickness. In accordance with Section 6 of the Port Sanitary Regulations, 1933, the master of a foreign-going ship is obliged to notify by wireless, either direct or through his agents, to the port sanitary authority of an approved port the presence of any condition requiring their attention, and this message must be received not more than twelve and not less than four hours before the ship arrives in the port sanitary district. Instructions were given to the pilot to anchor off Fawley in Southampton Water, and there await the arrival of the port medical officer.

At 5 p.m. on the Saturday the *Habana*, escorted by a British destroyer, was signalled off the Needles, and on receipt of this information the port sanitary staff, accompanied by customs and immigration officials, left the docks in the port sanitary launch to board her as arranged. Another launch followed with supplies of milk, glucose, meat extracts, and medical requisites.

Conditions on Board s.s. "Habana"

It was an extraordinary spectacle to see a vessel normally capable of carrying between 400 and 500 passengers steaming up Southampton Water with every inch of her decks covered with human beings. Even more extraordinary were the conditions found on board.

Children all herded together in the public rooms, in the alleyways, and on all the decks. Some were lying rolled in blankets, others running about the ship screaming, and a few, cool and complacent, appeared to accept the circumstances of their arrival in a strange land, having been parted from their parents, without any emotion. It was with some difficulty that we were able to reach the ship's hospital to see a boy of 12 who, later the same evening, was removed by launch and ambulance to the borough hospital for an operation on a strangulated testicle.

After consultation with the two English doctors who had made the selection and carried out a detailed examination of the children before embarkation and who had travelled in the ship from Bilbao, we were satisfied that no infection of a major character existed on board, and therefore modified practique was granted to the ship, permitting her to proceed to an inner mooring station next morning for a detailed medical inspection.

Suitable accommodation had to be found for the purpose of carrying this out, and this was no easy matter with so many persons on board. It was, however, decided to use the two main saloons, which were roped off to provide two entrances, and one exit on to the main gangway. Details as to the situation of the medical officers' examining cubicles and the provision of screens and other equipment were matters that had also to be considered on this occasion.

After lying off Fawley for the night the *Habana* steamed up Southampton Water to Berth 106 in the New Docks at 8 a.m. on the Sunday. Hundreds of the public, with Press representatives and photographers, had collected along the quay, but no person without an official pass issued by the port sanitary department was permitted to approach Berth 106 or go on board. The names and addresses of all who were given these official passes were recorded, in order that the health authorities throughout the country might keep them under a surveillance in the event of any major infection being discovered among the persons on the ship.

Medical Inspection

The gangway was fixed and the medical, nursing, and sanitary personnel of the department proceeded on board. Accompanying the children there was one female adult to approximately every twenty children. It was therefore thought expedient to arrange for these adults to be examined before we commenced on the inspection of the children, in order that they might be instructed to marshal the children in groups of twenty, so far as possible according to age and sex.

The saloons were then cleared of all except those taking part in the medical and immigration inspection, and within half an hour the children were lined up in queues and the inspection commenced. Nine medical officers of the department, each in a separate screened cubicle, took up their positions in the line of the queue. A health visitor assisted each doctor by stripping the children to the waist. In examining each child special attention was paid to the eyes for trachoma, the head for ringworm, lice, or nits, and the skin for rashes and lice. The heart and lungs were also tested in detail to decide on those fit to live under canvas.

On completion of the examination each child was dressed by a health visitor and passed on in the queue to a sanitary inspector, who stamped the identification card attached to each child, indicating that he or she had been medically examined. In addition he also tied a coloured tape on the child's left wrist, which served as a code as to destination. White tape indicated "clean," and allowed the child to proceed direct to camp; red tape indicated "verminous," and the wearer was sent to the Corporation baths for de-lousing; blue was for "infectious or contagious" conditions and for entry to the isolation hospital or other institution. Blue-and-white tapes were used for any other condition requiring general hospital treatment.

After the medical inspection was completed each child was passed on to the immigration officer, who stamped the disk officially; the children then proceeded down the main gangway, at the foot of which sanitary inspectors and health visitors collected them into groups according to the colour of the tapes and arranged for their immediate disposal in the following ways: clean children went direct by motor omnibuses to the camp; verminous children were taken in lorries to the Corporation baths for de-lousing; and the hospital cases were transported by the Corporation ambulances to the appropriate institutions.

General Physique of Children

The medical officers were surprised to find that a large majority of children showed no marked sign of malnutrition, although most of them had for months lived in Bilbao on fish and black bread and had spent the days and many nights herded together in bomb-proof shelters. The Public Medical Service in this particular province of Spain, according to the information obtained from the two English medical officers, is of a very high standard. Many of the children were thin, but the general impression gained, especially before they stripped, was that they were, generally speaking, an alert, intelligent group of children, who compared favourably in physique with our own children. The clothing as a rule was very good, and when that of the verminous ones was taken away from them for disinfection many of them wept. At the Corporation baths we were allowed to use forty of the slipper baths, and with the assistance of many voluntary and willing helpers, together with twelve barbers, 712 of the children were de-loused and fitted with complete sets of clothing, the latter being supplied by the Spanish Relief Committee.

At 7 p.m. on the Sunday medical inspection ceased for the day, the medical staff having worked continuously for ten hours and having dealt with 3,278 children. On the following morning the remainder were examined, the task being completed by 11 a.m.

My department received very great assistance from many voluntary workers and from the National Committee for Spanish Relief in providing transport, etc. It was only by the co-operation and hard work of all concerned that we were able to accomplish what, I believe, is a record in the annals of the Port Medical Service—the detailed examination of 4,056 children in twelve hours.

Public opinion appears to be somewhat divided about the acceptance of these children, but I think the only answer is, "What would we think if our own children were subjected to similar privation and danger?"

The Save the Children Fund, which as originator of the Declaration of Geneva (Child Welfare Charter of the League of Nations) has a special concern for the welfare of children and young people, passed a resolution at its Council meeting on April 22 welcoming the Factories Bill, 1937, in so far as it represents an advance on existing conditions affecting children and young persons. "The Council desires, however, to place on record the conviction that the Bill will fail to reflect the humane and enlightened public opinion of the day unless it is so amended as to ensure that no child shall be employed in a factory before the age of 15; that no child or young person shall in any circumstances be permitted to work more than forty hours a week; that no overtime be permitted in the case of any young person under 18 years of age; that holidays with pay be assured to all children and young persons; that the hour of leaving work may be sufficiently early to enable children and young persons to take advantage of available opportunities for education and recreation; and that the clause providing that the Home Secretary may suspend Part II of the Bill (dealing with safety) until 1940, be eliminated."

BRITISH MEDICAL JOURNAL

LONDON

SATURDAY JUNE 12 1937

THE INSURANCE CAPITATION FEE

The Court of Inquiry into the amount of the capitation fee to be paid to insurance practitioners appointed by the Minister of Health and the Secretary of State for Scotland has now made its report. From January 1 next the pool out of which insurance practitioners are remunerated will be calculated at 9s. per insured person as at present. This rate, however, is to apply alike to all insured persons, whatever their age of entry into insurance, and is apart from the special arrangements as to the supply of drugs and appliances and from any payments to meet the special conditions of practice in rural or semi-rural areas. This result will be received with some disappointment by the medical profession in general, although they will appreciate the vindication of the contention that the new class of juvenile entrants to insurance should be at the uniform and undiminished rate.

The personnel of the Court and the full and exact terms of reference thereto were given in the *Supplement* to our issue of May 8 last (p. 272); the memorandum and correspondence in which the case of the Insurance Acts Committee and that of the Ministers were placed before the Court were set out in the *Supplement* of May 29 (p. 313); and the proceedings before the tribunal during the four days of its sitting were reported in that of June 5 (p. 341). The decision of the Court will of course be loyally accepted by all the parties to the inquiry, and a perusal of our columns as just indicated will enable readers both to appreciate the restricted nature of this inquiry as compared with the wider reference to a former Court some thirteen years ago, and to judge the cogency and relevance of the arguments and facts brought to the notice of the Court by either side. These are all of much importance to the public and to the profession as a whole, as well as to insurance practitioners.

At the Court of Inquiry in 1924 the appropriate amount of the capitation fee was being inquired into *de novo* and the Court was necessarily occupied with such general questions as the nature and quality of the services rendered, the number and variety of the items of service which this necessarily entailed, the remuneration as compared with that of other forms of contract practice and with that accepted in other branches of the medical profession, the proportion of expenses in relation to the gross receipts of practice, and the cost of living in professional households compared with that of other classes of society. The present inquiry, though not less important, was simpler in so far as it was confined to the consideration of any changes which may have since taken place in some of these factors, together with any adjustments which should be made by reason of the proposed legislation to admit to insurance employed persons under the age of sixteen years. On the previous occasion some of the factors, particularly the proportionate amount of professional expenses, had, in the absence of sufficient information, been accepted as an agreed guess, whereas it has since been found possible to ascertain them more accurately; while other factors, especially the number of items of service per insured person, had been calculated as the result of inquiries by methods admittedly imperfect, but which have been greatly improved and extended. It is clear, therefore, that some of the standards accepted as entering into the award of 1924 themselves required some modification before they could be surely taken for the purpose of comparison with present-day conditions; and it is really this which seems to have led to the more pronounced differences between the statistical contentions of the two parties in the recent inquiry.

Whatever may have been the weight attached to these statistical differences for the purpose of balancing the award, it is the wider and more general considerations as to the quality and nature of the service which are of more concern to the public and to the profession at large. There is now, happily, in spite of minor criticisms, complete agreement as to the generous interpretation which many insurance practitioners give to the limiting words that define the scope of their contract and as to the high standard of work within that scope which is maintained by the great majority of them, so that the then Chief Medical Officer to the Minister of Health lately described the insurance service as "one of the most effective branches of the public health service"; and this high standard has been stated, on the same authority, to be "yearly rising." The Insurance Acts Committee was wise in emphasizing this, and in placing in the forefront of its case that in regard to national health value, to medical responsibility, and to the time factor in respect of individual attention alike, the worth of the service had been materially enhanced during even the last dozen years. It is impossible to approach any mathematical assessment of the first two of these matters, and with regard to the third there can be no exact calculations. It is

significant, however, that in the one instance of a large practice about which evidence was given before the Court, whereas the clientele had increased by 70 per cent. the number of consultation hours devoted to them had had to be multiplied fourfold. Every practising doctor knows that these things are true, and the amazing paragraphs under the heading " Nature of Services Rendered " in the memorandum of the Ministers (*Supplement*, May 29, p. 320) demonstrate nothing except the remoteness of the Health Ministry and Department, and even of some of their medical officers, from the realities of present everyday medical practice.

It is necessary to speak plainly on this point, for it is profoundly disquieting, and it seems to have been imperfectly appreciated by the Court. Does it represent the real attitude of our health officialdom to the body of practical workers in the health field? While officialdom is willing to admit a high standard of work within a certain scope, has it no more understanding than this of what that scope actually is? There is evidently a misconception of the relationship of hospital practice to private (including insurance) domestic practice and of the degree of responsibility which the general practitioner constantly undertakes, and an imperfect realization of the volume of preventive work he is constantly doing in the ordinary course of his daily activities. It is grotesque to suppose that there is only a definite amount of medical work to be done and that if there is an increase in that carried out at hospitals there is so much the less for the general practitioner to do. On the contrary, though the adjustments between the two kinds of work are not yet all that they should be, it is true to say broadly that an increase of work in the one field carries with it the almost necessary implication that the work in the other fields must have increased also. Further, there are not a small number of cases in which the responsibility of deciding that hospital or operative work must be undertaken may be even greater than that involved in the carrying out of that work itself, and health guidance may be as important and anxious as manipulative treatment, though it exercises an altogether different kind of skill.

Even more disquieting than the paragraphs in the memorandum referred to was the evidence given by two of the deputy regional medical officers of the Ministry of Health. These officers hold positions of importance and influence, and are supposed, by reason of their standing and of their own experience of practice in a not too remote past, to be available to help and advise less experienced practitioners in several aspects of their insurance service. Yet as soon as the evidence of one of these officers had been given Dr. Dain was obliged to draw attention to " such an extraordinary account of conditions in general practice," and to ask leave to call an additional witness typical of the general high average of practitioner, who gave an account of those conditions which was completely different but which will at once be recognized by his fellow practitioners as a picture and not as a caricature.

It remains to express appreciation of the general fairness and moderation with which Mr. Harrison presented the case for the Ministers, and to acknowledge the skill which was manifested both in the memorandums and in the actual conduct of the proceedings before the Court on behalf of the Insurance Acts Committee.

HEPATONEPHRITIS

Though the conception of hepatonephritis had been put forward by various French authors, it was not till the discovery of the icterohaemorrhagic spirochaete of epidemic jaundice by Inada and Ido that much attention was paid to it elsewhere. During the war of 1914–18 crowded conditions brought epidemics intensively before the profession, and epidemic jaundice, or Weil's disease, was described among the combatants of both sides. Stokes and Ryle particularly contributed to the better understanding of the symptoms and course of the disease on the British front in Flanders. In this complaint the features are an acute febrile illness with jaundice and renal involvement, and in severe cases much toxaemia. The progress of knowledge and research has led to development on two lines. The carrier of the infecting spirochaete is the rat, and the infection was spread to epidemic proportions in the rat-infested trenches and dug-outs of the war. The spirochaete is excreted in the urine, so that workers in contaminated mud and sewer slime may become infected through abrasions of the skin of legs and hands. Minor epidemics have occurred in sewer workers and in miners. There has thus been a tendency to refer all hepato-renal manifestations to a spirochaetosis; where spirochaetes cannot be demonstrated in blood, urine, or tissues some authors go so far as to suggest a cryptogenic spirochaetal infection.

The reaction against this one-sided pathology has been increased by the discovery that many toxic substances—phenylquinoline, tetrachlorethane, lead (acute poisoning), apiol, and salts of uranium—cause the typical syndrome of hepatonephritis, similar to those cases of poisoning after phosphorus, chloro-

form, or mushrooms observed from time to time. Among infections with *B. perfringens* and in rare cases of pneumococci, staphylococci, and *B. paratyphosus* a form of hepatonephritis may occur; while yellow fever affords an example where the aetiological factor is a virus. There is thus a fairly widespread group of diseases which fall under the heading of hepatonephritis, but not every affection simultaneously of liver and kidneys should be included. Maurice Derot and Renée Derot-Picquet, who have worked a great deal on the subject and have brought together their clinical observations in a useful brochure,[1] would define hepatonephritis as a disease characterized by simultaneous evolution of manifestations in the liver and kidneys, the alterations in these organs being determined by one and the same cause, whether infectious or toxic. Among the infectious causes undoubtedly the most important is the *Spirochaeta icterohaemorrhagiae,* but others occur in the virus of yellow fever, the treponema of syphilis, various tropical diseases, malaria, dengue, and recurrent fever, and, among the bacteria, various anaerobes as well as the cocci and typho-paratyphoid group. The toxic causes are the heavy metals arsenic, lead, and gold, phosphorus, chloroform, carbon tetrachloride, mercurochrome, and especially apiol, which has been responsible for many grave haemorrhagic cases with symptoms of polyneuritis or tetany. In a certain number of cases no assignable aetiological factor has been found. In severe cases the liver becomes enlarged and swollen, then degenerates and necroses to a state of yellow atrophy; the kidneys are congested, with glomerulitis and diffuse interstitial infiltration. Not all cases come to necropsy, however; many are curable, leaving varying amounts of liver and renal damage as sequelae.

The symptoms are jaundice and alteration in size of the liver with albuminuria and diminished urinary excretion. These signs are often accompanied by haemorrhages and ecchymoses and by severe disturbance of the nervous system from meningeal involvement. In most cases there is fever and loss of weight, though the muscle-wasting may be obscured by oedema in many patients. Even in severe cases recovery may take place with more or less impairment of function of liver and kidneys subsequently. Treatment is difficult, and consists in supporting the patient's strength, except in the rare cases where there is a specific antidote for the cause, such as an anti-spirochaetal serum or a serum protective against the gas-oedema bacilli.

[1] *Les Hépatonéphrités.* By Maurice Derot and Renée Derot-Picquet. Paris: J. B. Baillière. (25 fr.)

THE CHEMISTRY OF ATHLETIC RECORDS

The attempt to isolate the feature or features which explain athletic efficiency is of interest alike to physiologists and to students of athletics. To a considerable degree such attempts are disappointing, since superiority depends upon co-ordination of the many factors comprising a complex machinery or upon a still more elusive biochemical factor. American physiologists are fortunate in their access to a large amount of first-class athletic material for experimental purposes and in their opportunities for investigation. Some recent results[1] from the Rockefeller Institute for Medical Research, New York, applying to five middle-distance runners of international renown, will appeal to all athletically minded in this country; for of the five Lash, Cunningham, San Romani, and Venzke appeared at the White City Stadium on August 15 of last year, when the British Empire met the United States in a post-Olympic contest. In general it is agreed that the occurrence of fatigue after muscular exertion is bound up with the accumulation of lactic acid, and it may be a matter for speculation whether the trained athlete differs from the untrained through reducing this accumulation by better motor efficiency, or by his superior circulation ensuring a better oxygen supply to his muscles, or by his ability to tolerate a higher lactic-acid concentration, or possibly on account of all of these. During the most severe exertion of which a man is capable lactic acid is produced at the rate of 3 to 4 grammes per second; and as the maximum concentration that can be tolerated is of the order of 90 grammes the duration of a maximal effort would be limited to 30 seconds, since in that time oxidation of at least 15 grammes would be possible. It is of considerable interest to reflect that this estimate of the limit of extreme effort based upon chemical investigation is supported by the practical experience of athletes that thirty seconds represents the limit of supreme exertion, granted sufficient determination and fortitude to "go all out." As might have been expected, the oxygen intake of the trained and untrained man was found to be the same when comparatively low grades of exertion —for example, a walk at the rate of 5.6 kilometres an hour—were undertaken. At higher grades the oxygen intake of the trained man was much greater; the lactic acid was kept at a lower level. The efficiency, for example, of Lash when running at the rate of 18.7 kilometres an hour for five minutes enabled him to consume 4.96, 5.08, and 5.1 litres of oxygen successively in the last three minutes of the run and to finish with a blood lactic-acid concentration of only 47.5 mg. per cent. In a final experiment Lash ran (for a distance not stated) at the rate of 21.6 kilometres per hour, which is approximately his speed when he created a world's record for two miles. In this experiment he reached an oxygen intake of 5.35 litres a minute. Related to basal metabolism this means that he elevated his metabolic rate to 21.4 times its basal level as compared with 14.5, the maximum of the best untrained man. This far exceeds all previous estimations of a similar character. It is, of course, unwise to apply uncompromisingly the cold-

[1] *Science,* 1937, **85,** 409.

blooded results of the laboratory to those produced under the stimulus of emotion: intense excitement, the influence of competition, the desire to win, and so on. In some cases the unsuspected sources of human endurance may be well beyond those which the laboratory would indicate. Alternatively, some temperaments may lead to better performances in the laboratory. Lash, one recalls, was a failure at the White City contest. Although subsidized research in this subject on the elaborate lines of our transatlantic colleagues is not practicable in this country, the importance of British activities must not be belittled. The pioneer contribution on lactic-acid metabolism, the seed of all research, is credited to Fletcher and Hopkins. The classical work of Starling on the heart and of Haldane, Barcroft, and Douglas upon respiration is accepted as of supreme authority. Bainbridge's *Physiology of Muscular Exercise*, published in 1918, has been an inspiration to all subsequent workers. A. V. Hill, uniting physiological and mathematical experience to athletic interest and ability, in his fascinating experiments upon human machinery originated the present trend of investigation; and Adolphe Abrahams has applied himself to what might be termed the clinical side of the subject. The liberality with which the British workers are quoted is testimony to the value attaching to their results.

THE LIVERPOOL MEDICAL INSTITUTION

The Liverpool Medical Institution was formally opened on May 31, 1837, and on another page we give an account of the celebrations which have marked the centenary of its foundation. From time to time the institution has moved its local habitation, but it has always gone from strength to strength, availing itself of the local *esprit de corps* which is so pronounced a characteristic of the North Country. The present issue of the *Liverpool Medico-Chirurgical Journal* (vol. **45**, No. 1, 1937) is remarkable, and reflects the greatest credit on Dr. J. Murray Bligh, the editor, who introduces it with a short preface. There are two inaugural addresses, the one by Professor R. E. Kelly, president of the institution during the present centennial year, the other by Mr. G. C. E. Simpson, who was president in 1936. Professor Kelly treats of "Surgery One Hundred Years Ago," and reprints the address given by Dr. John Rutter on May 31, 1837. Mr. Simpson writes about "The Liverpool of our Founders," and gives an appalling account of the social and sanitary condition of the town as it was until comparatively recently. Both addresses are of great general interest even to the ordinary reader, and still more so to the many distinguished alumni of the University of Liverpool. Both, too, are lavishly illustrated. Next to the addresses comes an article by Mr. C. Thurstan Holland entitled "On *X*-Rays in 1896"; and finally a very valuable "Note on Early Liverpool Doctors and Ships' Surgeons" by Dr. Bosdin Leech. He gives a list of names of medical men whose wills were proved in the Probate Court of Chester from 1692 to March 1, 1820—a most laborious task, but with commensurate results for those who are doing the spade work of medical history.

NERVOUS LESIONS IN EXPERIMENTAL VITAMIN B DEFICIENCY

Since the discovery that vitamin B consists of at least two components—the one heat-labile, the "anti-neuritic" factor, B_1; the other thermostable, the so-called "pellagra-preventing" factor, B_2 (known in America as vitamin G)—much experimental work has been done to study the lesions produced in animals by the absence from the diet of both, or one or the other, of these two components. At a meeting of the American Neurological Association Zimmerman, Cowgill, and Fox[1] gave the results of their experiments in which they attempted to produce a chronic neurological disease in dogs by feeding them with a minimal quantity of vitamin B_2, the diet being adequate in all other respects. The animals were divided into groups according to the amount of vitamin B_2 they received, this being supplied in varying doses in the different groups in the form of a powdered liver extract. Those animals whose diet contained some but an inadequate amount of this vitamin developed muscular weakness and ataxia. Before the experiment each dog had been trained to do such simple tricks as standing on its hind legs and maintaining its balance on a turn-table. Subsequent inability to perform these tricks whilst on the vitamin-free diet was used as a clinical test of incoordination. Twelve animals out of fifteen on this diet grew progressively weaker, gave evidence of incoordination, and developed vomiting and diarrhoea. Death occurred at periods varying from 102 to 599 days. In twelve control animals on the same basic diet plus an adequate supply of vitamin B_2 no disease arose. Pathologically, the affected animals showed the changes of a peripheral neuritis with involvement of the posterior nerve roots and degeneration of the posterior columns of the spinal cord. No changes were found in the nerve cells of the brain or cord. In the discussion which followed the reading of the paper a suggestion was made that caution should be exercised in accepting the lesions in the spinal cord as the direct result of lack of a specific vitamin, and the work of Edinger was quoted in support of the suggestion. He assumed that in any debilitating condition neural paths which are made to function excessively may become exhausted, and, finally, degeneration may occur in them. In these experimental dogs the movements which they had been trained to perform and by which they were constantly tested involved the continued functioning of the nerve fibres in the posterior columns conveying the sense of position. It was not surprising, therefore, that these fibres should be the first to degenerate, whatever the cause of the disease. This observation is supported by the experimental work of Davison and Stone,[2] who investigated the lesions produced in rats by deprivation of both B_1 and B_2 factors and also the effect of total starvation and starvation in spite of adequate vitamin B rations. In animals totally starved and in those starved but supplied with enough vitamin B, they found even more intense changes in the nervous system than in the rats deprived of vitamin B_1 or of both B_1 and B_2. The lesions of a peripheral neuritis occurred in all the

[1] *Arch. Neurol. Psychiat.*, Chicago, 1937, **37**, 286.
[2] *Arch. Pathol.*, 1937, **23**, 207.

animals, and occasionally at the periphery of the spinal cord there was degeneration of the myelin sheaths. Severe cell changes, consisting of vacuolation and necrosis, with small areas of haemorrhage, were also observed in the spinal cord and the mesencephalon. The fact that all these pathological lesions can appear in animals simply deprived of food is strong evidence that, however well dietetic experiments may be controlled, conclusions based upon them must be accepted with reserve.

SELECTIVE COLLAPSE

The treatment of pulmonary tuberculosis by artificial pneumothorax aims at putting the affected part of the lung at rest. If this can be attained without collapse of the healthy parts it will be all to the good of the patient. Since Parry Morgan first drew attention to selective collapse in 1912 radiology has brought this phenomenon more and more to the notice of clinicians: when only one lobe or part of a lobe is diseased, and there are no interfering pleural adhesions, that lobe collapses at a pleural pressure which alters but little the size of the other lobe or lobes. The theories of the mechanism underlying selective collapse are fully discussed in two papers recently published by F. Cardis[1] and by H. Warembourg and R. Swyngnedauw.[2] The tendency of tuberculous tissue to heal by fibrosis gives the increased retractility that would account for more rapid collapse of the diseased area, but not for the fact that the whole lobe collapses, including the healthy portions. Parodi believes that the weight of the lung is an important factor: the introduction of air into the pleural cavity eliminates this factor, and the greatest benefit is obtained by the part of the lung most affected by the weight of that organ—the diseased portion. Cardis points out, however, that this argument could have force only in regard to the upper lobe, yet selective collapse is seen in the others as well. Warembourg and Swynghedauw also reject Parodi's theory, but believe that the weight of the lobes helps to determine the relative position of the lobes in the treated lung. Cardis concludes that only one mechanism will account for collapse of the whole of the affected lobe—immobilization by reflex nervous action, a phenomenon comparable with muscular contraction round a diseased joint or in the abdominal wall in peritonitis. The other two authors carried out experiments in healthy dogs. Each lobe of the lung was removed and its elasticity studied by a method they describe. The upper lobes were found to be slightly more elastic than the lower: they believe these findings apply to man. They also obtained support for the theory of a nervous factor in experiments on patients with an artificial pneumothorax. The pleural pressures were read before and after an injection of atropine. In two-thirds of the patients the pressure was increased by one to four centimetres of water in both inspiration and expiration. Atropine did not alter the pleural pressure where the collapse was strictly selective and the other lobes were still expanding. On the other hand, it had a definite effect in "contraselective" cases, when in spite of a negative pleural pressure the healthy lobes were well collapsed, and in those in which the whole lung was collapsed with a definitely negative pleural pressure. Atropine thus in some way allows the "expansion" of the healthy parenchyma. The authors tentatively suggest its use in those patients in whom the healthy lobes of the treated lung are unnecessarily collapsed.

[1] *Arch. méd.-chir. Appar. resp.*, 1936, **11**, 341.
[2] Ibid., 1936, **11**, 354.

MATERNAL MORTALITY

In recent years a number of investigations into the causes of maternal mortality have been conducted both in this country and in the U.S.A., and have resulted in remarkably similar conclusions. In 1933 the Obstetrical Society of Boston appointed a committee of nine physicians to make a study of the maternal deaths in Boston for the years 1933–5 inclusive, and this report has just been published.[1] During this period there were 47,892 live births and 1,336 stillbirths—in all, 49,228 deliveries, resulting in 318 deaths, a mortality rate of 6.4 per 1,000. Deaths due to abortion, ectopic gestation, and diseases associated with pregnancy are included in this review, and the committee, having studied the death certificates filed at the State House, added forty to the official number of deaths issued by the Department of Health. Perhaps the most surprising feature of the report is the statement that phlegmasia alba dolens, embolus, and sudden death accounted for forty-four deaths, some operation having been performed in thirty of the cases. Anaesthesia was responsible for thirteen deaths and the toxaemias of pregnancy for a further fifty-one. Seventy-four deaths were attributed to puerperal septicaemia, which in fifty-three cases supervened after operative procedures. More than one-quarter of the fatalities, seventy-eight to be precise, followed Caesarean section, thirty-one being ascribed to sepsis. There was a further death due to rupture of the uterine scar of a previous Caesarean section. If it be assumed that the mortality rate associated with Caesarean section was 10 per cent., then it follows that 1.6 per cent. of all pregnant women in Boston were subjected to this operation. It is significant that Montgomery[2] found that the death rate over a ten-year period from Caesarean section in a charity service at Philadephia was 6.1 per cent., and that the high mortality was by no means the only objection to the operation. He concluded that it is "an unsatisfactory recourse in the impossible obstetric situation." Paradoxical as it may sound, it would nevertheless appear to be true that the excellent results from this operation which are obtained by a few select surgeons have encouraged its abuse by those unqualified to perform it, and have led to the partial substitution of obstetric surgery for normal midwifery. The committee did not hesitate to report that in its view many of the deaths were due to bad obstetrics. It found that of the fifty-one women who died from the pregnancy toxaemias only seven received adequate ante-natal care. Of the seventy-four deaths from sepsis twenty followed normal confinements, and the committee states that "lack of proper technic must

[1] *New Engl. J. Med.*, 1937, **216**, 43.
[2] *Amer. Journ. Obstet. Gynec.*, 1936, **31**, 968.

be assumed . . . that twenty operative delivery cases should have died allows of but one conclusion—the operators' technic was poor." Referring to cases of Caesarean section performed for disproportion, the committee remarks that "when it is known that a certain number of these cases were done by men who have had absolutely no training in obstetrics the indication is open to question." The Boston report is fearless, and gives the results of midwifery in a city well supplied with efficient maternity services, results which are presumably better than obtain in the country as a whole. Although it is a pity that a statistician was not co-opted to the committee, it is to be hoped that this report will obtain the publicity it deserves. Every inquiry into the causes of maternal mortality has shown that much of it is preventable.

THE HEART IN EMPHYSEMA

The opinion, based on pathological studies, that the right heart enlarges in chronic lung disease with emphysema has only tardily been shared by those who study the living subject. The reasons for this are, first, the difficulties of recognizing cardiac failure in the presence of emphysema, and, secondly, the particular type of cardiac change which may result, which does not appear radiographically as a general or transverse enlargement of the heart. Moreover, the issue has been confused by the fact that primary cardiovascular disease, with its own particular effects on the heart and great vessels, is frequent in the subjects of emphysema. A study of the radiological appearances in eighty patients by J. Parkinson and C. Hoyle[1] shows that definite changes in the heart and in the pulmonary vessels appear in a large proportion of cases. In the anterior view the heart may look small, the transverse diameter being either normal or less than this by reason of the low position of the diaphragm, which tends to elongate and at the same time to narrow the cardiac shadow. The conus of the right ventricle and the pulmonary artery may, however, be more prominent than usual, the former giving evidence of the early stage of enlargement of the right ventricle. In the antero-posterior and left oblique positions respectively the right and left main pulmonary arteries may be seen to be enlarged. Enlargement of the right auricle is uncommon and is a late development usually associated with congestive failure. The left side of the heart, both auricle and ventricle, was found to remain unaffected in uncomplicated emphysema, and where the left ventricle was increased in size this was attributed to an accompanying hypertension. Auricular fibrillation was observed in one case only, and the preservation of normal rhythm and the infrequency of failure account for the rarity of auricular enlargement. Congestive heart failure was found in only a small number of the cases, and in half of these there was hypertension. The failure associated with uncomplicated emphysema is thus rare, but the prognosis is bad; the condition is, in fact, usually a terminal one. Electrocardiography was of little help in diagnosis, as signs of right heart involvement, such as right ventricular predominance (old terminology), were uncommon, and close correlation with the radiological picture was impossible. The observations of Drs. Parkinson and Hoyle, which are clearly illustrated by radiographs, indicate that cardiac changes, elusive clinically, are to be recognized in emphysema only with the help of *x*-rays and provided they are sought in the right situations. Though these changes may not be of great significance from the functional point of view, it is possible that when combined with those of hypertension, an association which is common, they may play an appreciable part in determining cardiac failure.

[1] *Quart. J. Med.*, January, 1937, p. 59.

BOVINE TUBERCULOSIS IN THE NETHERLANDS

A. Charlotte Ruys[1] has attempted to ascertain the frequency of tuberculosis of bovine origin in the province of North Holland. She used the cultural method and confirmed the identity of all bovine and some of the human strains by rabbit inoculation. From 204 sputa she isolated thirteen bovine strains. Inquiry showed that of the patients infected with the bovine type three out of 115 lived in Amsterdam and ten out of 89 in the country. Gastric contents from children were examined and strains isolated from 188 subjects. Among these, sixteen were of the bovine type. Sixty-six strains of tubercle bacilli were isolated from patients of all ages suffering from non-pulmonary tuberculosis. The samples examined included pus from cervical glands and joints, urine, ascitic fluid, cerebro-spinal fluid, and material from skin lesions. Of these strains eleven had the typical bovine characteristics. It will thus be seen that tuberculosis of bovine origin occurred with considerable frequency in the population examined. This is not surprising in view of the fact that 34 per cent. of cattle slaughtered in Amsterdam in 1934 had tuberculosis lesions and 40.8 per cent. of 11,000 cattle in North Holland reacted to the tuberculin test. Infection of human beings appears to occur chiefly by milk, and it is recommended that an active anti-tuberculosis campaign should be prosecuted in cattle and that all milk should be subjected to compulsory pasteurization.

[1] *Off. int. Hyg. publ.*, 1937, **29**, 342.

The Council of the Royal Society of Arts has awarded the Albert Medal for 1937 to Lord Nuffield "for services to industry, transport, and medical science."

The Morison Lectures will be delivered before the Royal College of Physicians of Edinburgh by Dr. R. G. Gordon on June 17 and 18 at 5 p.m. His subject is "The Neuro-Psychological Basis of Conduct Disorder."

The third annual conference convened by the Ex-Services Welfare Society will be held at 10 a.m. at the Grosvenor Hotel, Victoria Station, S.W., on Friday, June 25, with Dr. Edward Mapother in the chair. The subject for discussion will be "Control of the Incidence of War Neurosis," under the following heads: (1) The malingerer before and after enlistment; (2) Elimination of the potential neurasthenic during training; (3) Treatment in the field.

CONFERENCE ON MATERNITY AND CHILD WELFARE

The seventh English-speaking Conference on Maternity and Child Welfare was held at the British Medical Association House, London, from June 1 to 3. Over 600 delegates were appointed, many of them from distant parts of the Empire and from the American continent, and among those who presided or took part were Dr. R. E. Wodehouse, Deputy Minister of the Department of Pensions and National Health, Canada, the Hon. G. F. Gaha, Minister of Health of Tasmania, and Dame Enid Lyons, wife of the Prime Minister of Australia.

Review of Progress by Minister of Health

The conference was opened by Sir KINGSLEY WOOD, the Minister of Health, who gave a review of recent progress in the field of maternal and infant care. The rate of maternal mortality in this country had not been specially high, fluctuating around four deaths per 1,000 births, and the number of deaths due to child-bearing was less than 8 per cent. of all deaths of women of child-bearing age. The disappointing feature was, however, that, notwithstanding much intensive effort, the death rate had not been substantially lowered, and a proportion of the maternal deaths were undoubtedly preventable. The Ministry was watching with close attention the provisions for the fuller clinical training of medical students in obstetrics and the new provisions for the training of midwives, also the improvements in the science and technique of midwifery. The number of ante-natal clinics had increased from 1,253 in 1931 to 1,672 in 1936, and the number of expectant mothers attending these clinics last year was 298,000, representing just over 48 per cent. of the total of notified births. With a further number of women examined by local practitioners elsewhere than at the clinics, but under arrangements made by local authorities, the proportion was brought up to over 50 per cent. The number of beds subsidized in 1936 by local authorities was 8,626, comparing with 7,123 in 1931, and the number of women admitted to this accommodation had increased from 97,860 to 149,547. Many in-patient maternity units, particularly in hospitals taken over by county and county borough councils, had been modernized and extended. The Minister then went on to make the gratifying announcement that the number of maternal deaths per 1,000 live births in 1936 was 3.81, comparing with 4.11 in 1935, the lowest rate recorded since 1922.

The Midwives Act

All these measures, said Sir Kingsley Wood, had received a powerful reinforcement from the new Midwives Act. That Act enabled the midwifery service to be provided in one or both of two ways, by the direct employment of salaried midwives by the local supervising authority or by arrangement with voluntary associations. The greater number of county councils were making arrangements with the county and district nursing associations, while the authorities in urban areas were more commonly providing for the direct employment of midwives or adopting a combination of the two methods.

Finally Sir Kingsley Wood referred to the special investigations into maternal mortality carried out by a number of the Ministry's medical officers, together with Sir Comyns Berkeley, during the last two years. The inquiry had been made in sixty-nine administrative areas, including fifty-seven where maternal mortality had been above the average. The report had disclosed many interesting points.

Although it was true that no reliable statistics were available on the incidence of abortion, the investigators had gained the impression that the practice of artificially induced abortion was increasing and was certainly responsible for many maternal deaths.

Infant mortality continued at a low level. During the last three years—1934–6—the rate for the first time had been under sixty per thousand births. This compared with rates of seventy and upwards ten years ago.

Parents and Psychology

Only the most cursory review of outstanding discussions in a three-day conference can be given. Dr. ERIC PRITCHARD spoke on the education of parents, and urged that the teaching of mothercraft should have in view the protection of infants from the risk of infection. Dr. URSULA COX stressed the value of group teaching of parents, pointing out that a given subject could be discussed in much more detail and with much more emphasis and assertion in a group than with a single individual. Dr. STELLA CHURCHILL protested against the clock as too rigid a dictator in infant welfare. Mothers were taught to say, "It is not yet feeding time; the baby must be kept screaming for another half-hour," or they must lie awake in the early morning and listen to its crying until the clock struck six. The pendulum had swung too far from the time when infants were fed every two hours whether they wanted it or not.

Dr. J. A. HADFIELD gave what amounted to a lecture on preventive psychology. He described the psychological development of the young child at different ages, and insisted that every age should have respect paid to it. The self-assertiveness of age 2 would develop into the will power of age 4. The parent who forced the child of 5 to be sociable might be attempting something unnatural in view of the fact that the child was then developing its ego. He spoke of the importance of investigating the terrors of young children; the fundamental cause was the deprivation of love and affection. He did not agree with Freud as to the sexual basis, but it was not to be doubted that protective affection was the primary need of every child, and if deprived it developed fears and anxieties. Neurotic disorders might be traced back to the first three or four years of life.

Dr. MARGARET LOWENFELD suggested that there be included in the ordinary training of all nurses, midwives, and children's doctors lectures devoted to the explanation of the psychological aspects of maternal and infant care, and that all ante-natal and post-natal nurses and midwives should have lectures on the emotional aspect of pregnancy, labour, and lactation.

Nutritional Problems

A discussion on nutritional problems in relation to mother and child (in which the economic question would obtrude itself, in spite of the earnest efforts of the chairman, Dr. Wodehouse, the Canadian Minister, to keep it out) was opened by Dr. ROBERT MCCANCE, who confessed that despite the work done on the subject during the last twenty years there was still much obscurity. But the civilized world now had at its disposal a good deal of knowledge about nutrition, sufficient to enable it to be said that millions of human beings, certainly at some periods of their lives, were not adequately nourished, and enough theoretical knowledge was also available to formulate a proper diet. Dr. R. C. JEWESBURY dealt with nutrition during pregnancy and lactation, and pleaded for a wider understanding of dietetics and food values in order to minimize the nutritional problems in relation to parent and infant.

The subject of preventive work for cripples and invalid children was developed by Dr. BERNARD SCHLESINGER, who gave an account of experiences gained during the last ten years at the Children's Heart Hospital, West Wickham, also a cheerful outline of the results of a follow-up system among rheumatic children. Mr. E. S. EVANS discussed problems requiring further attention in the prevention of crippling. These included the provision of clean, safe milk, the establishment of more nursery schools and play centres, and the general improvement of

social and hygienic conditions. A session was devoted to maternity and child welfare in backward regions, and gave an opportunity for an exchange of experiences by visitors from different parts of the Colonial Empire. Dr. MARY BLACKLOCK described the conditions of maternity and child welfare work in Sierra Leone, and Dr. MABEL BRODIE in Malaya.

This was the seventh English-speaking conference, and Dr. G. F. MCCLEARY, chairman of the Association of Maternity and Child Welfare Centres, who presided over the first session, recalled the origin of the movement. It sprang from the Congrès Internationale des Gouttes de Lait held in Paris in 1905, the first international gathering devoted to maternity and child welfare, and attended by representatives of three British local authorities—Battersea, Glasgow, and Huddersfield. These representatives were so much impressed with the enthusiasm with which problems of infant welfare were being tackled in France that they determined to initiate a conference in London, and under the presidency of Mr. John Burns, then President of the Local Government Board, it was held in the following year. At the third national conference in 1912 the National Association for the Prevention of Infant Mortality was formed, and this has since organized twenty national conferences and six conferences of English-speaking peoples.

REHABILITATION AFTER ACCIDENTS

REPORT OF COMMITTEE

In April, 1936, an inter-departmental committee was set up by the Home Secretary, the Minister of Health, and the Secretary of State for Scotland to inquire into the arrangements made in this country for the restoration of the working capacity of persons injured by accidents. The decision to appoint this committee was taken after consideration of the report issued by the British Medical Association early in 1935,[1] which made suggestions for improving the organization of present arrangements for the treatment of fractures and drew attention to the importance of the industrial aspects of this question. The committee's terms of reference are:

"To inquire into the arrangements at present in operation with a view to the restoration of the working capacity of persons injured by accidents, and to report as to what improvements or developments are desirable, and what steps are expedient to give effect thereto, regard being had to the recommendations made in the report issued by the British Medical Association in February, 1935, on fractures."

The medical members of the committee, of which Sir Malcolm Delevingne is chairman, are Dr. Muriel Bywaters, Mr. W. A. Cochrane, Dr. T. Ferguson, Mr. E. W. Hey Groves, Dr. J. F. E. Prideaux, Mr. H. S. Souttar, and Mr. A. C. T. Woodward.

Treatment of Fractures

It was apparent from the B.M.A. report and from information available from other sources that the question of the treatment of fractures was of special urgency, and for this reason, with the approval of the Ministry of Health, the committee decided to deal first with this part of the subject.

The committee issued an interim report at the end of last week.[2] Introducing a survey of the present position it says:

"The recommendations in the report issued by the British Medical Association laid down certain principles both of organization and of treatment. The principles of organization may be summarized as concentration of cases in one department under a single control, continuity of treatment and supervision by that department until rehabilitation—that is, restoration to working capacity—has been effected to the fullest possible extent, and a system of records of cases which will permit the history of each case to be followed from start to finish, and the final results ascertained. The principles of treatment aim at securing exact reduction of the fracture, fixation in correct position and immobilization of the broken part, and active movement from the earliest possible moment of the uninjured parts of the limb to prevent wastage of muscles and stiffness of joints. We were given to understand that these general principles were accepted by the Government Departments concerned, and that the object in view was the provision throughout the country of fracture services which would place within the reach of every injured person the benefits of the improved methods of treatment, with the threefold result of mitigating suffering, reducing the period of disablement and the loss of working and earning power, and securing wherever possible complete restoration of working capacity."

Organization of Fracture Clinics

The report outlines a scheme for a "model clinic" for the assistance of those engaged in the consideration of such proposals. The importance of unified control and the constant supervision and direction of all cases by a visiting surgeon specially appointed is emphasized. In view of the onerous nature of his duties it is recommended that the surgeon-in-charge should have an honorarium.

The committee concludes that the provision of a network of fracture services covering the whole country will call for careful planning to meet local needs and conditions. The co-operation of local authorities, hospitals, the medical profession, and of employers' and workers' organizations will be necessary, and in some areas is already being secured.

The report records that the number of fracture cases treated annually in the hospitals of England, Wales, and Scotland is well over 200,000. The committee received information from 825 hospitals in the three countries, of which 724 were voluntary and 101 municipal. In fifty-nine of these there are special fracture departments under a single control, ensuring continuity of treatment until the patient is restored to work. These fifty-nine hospitals treat about 50,000 cases annually. The establishment of new fracture services and clinics, the committee understands, is also being considered in many quarters.

Circular to Local Authorities

Copies of the committee's interim report have been forwarded to county councils and county borough councils in England from the Ministry of Health with a letter (Circular 1632). This points out that the main purpose of the report is to make known the lines on which fracture clinics should be organized, equipped, and staffed, and the relations between these clinics and the cottage hospitals, etc., which serve outlying areas. The Minister trusts that if any council proposes to establish a clinic for the treatment of fractures under either the Public Health or the Poor Law Acts reference will be made to the detailed scheme advised by the committee, which is ready to assist in the consideration of any difficulties that may be presented in the application of the scheme by local circumstances.

[1] *British Medical Journal Supplement*, February 16, 1935. Reprinted in pamphlet form. Price 3d., or 4d. post free, and obtainable from the British Medical Association, Tavistock Square, W.C.1, or through any bookseller.

[2] Interim Report of the Inter-Departmental Committee on the Rehabilitation of Persons Injured by Accidents. 1937. H.M. Stationery Office. (4d.)

D. Sibilia (*Policlinico*, Sez. prat., April 19, 1937, p. 772), from observations on forty cases of relapsing fever among the coloured troops in Addis Ababa, came to the conclusion that the only type of spirochaete found among them was identical with Obermeier's spirillum in its morphological features, mode of transmission by lice, and pathogenicity for animals.

Reports of Societies

BEJEL—THE SYPHILIS OF BEDOUIN CHILDREN

At a meeting of the Royal Society of Tropical Medicine and Hygiene on May 20, with the president, Sir ARTHUR BAGSHAWE, in the chair, a paper on bejel—the syphilis of Bedouin children—was read by Dr. ELLIS H. HUDSON.

Dr. Hudson said that bejel was the Arab name of a spirochaetal disease found among the semi-nomad villagers of the Middle Euphrates; it had also been recognized on the Lower Euphrates and along the Tigris, and among the nomad Bedouins of the Syrian Desert. The bejel type of syphilis—operating under the epidemiological triad of widespread community infection, childhood acquisition, and general lack of treatment—was present in many other regions of the world. A thorough study of this clinical entity, however, had hitherto been handicapped by inevitable confusion with either venereally acquired syphilis or yaws, or with both.

The location of the Middle Euphrates on the thirty-fifth degree of latitude north—far from the accepted endemic regions of yaws—the remarkable isolation of this region, and the absence of sexual promiscuity and venereal disease among the Bedouin villagers, had presented an opportunity for the study of bejel. The essential feature which distinguished it from venereally acquired syphilis was that bejel was usually contracted in childhood. Children of the village communities constituted the reservoir and the source of contagion of the disease; 60 per cent. of the adults had acquired it in childhood, and a majority of the remainder contracted it from children, often their own, later in life. In a dirty, careless, poorly clad, closely huddled and untreated population the facilities for transfer of the spirochaete by non-sexual contacts were innumerable, especially among the children. Less than 1 per cent. of the adults acquired the disease through sexual intercourse; 75 per cent. of the general adult population stated they had had bejel, and about 75 per cent. had positive serological reactions. Surveys showed that 90 per cent. of the adults were affected. That bejel was a treponematosis was established by the character of the early and late lesions, the phenomenon of relapse, the quality of latency, the uniform presence of a spirochaete indistinguishable from *Treponema pallidum*, the positive precipitation and complement-fixation reactions, and the favourable response to antispirochaetal drugs.

Cure of the individual patient was not a practical objective in bejel. The aim should rather be to eliminate the disease from the community by preventing the development of new cases, and this could be accomplished by "sealing up" the infection already present. This objective could be secured by the use of bismuth without risk to the patient and in a time schedule adapted to the temperament of the primitive patient. Bismuth was less toxic and more effective than mercury; it was more suitable to the conditions of bejel than the arsenicals, and also easier of administration, less hazardous to the patient, and much cheaper. Bejel resembled yaws in non-venereal childhood acquisition, community-wide dissemination, high diagnostic value of the patient's own statement regarding infection, absence of "chancre immunity," morphology of the skin lesions, predilection for the skin and the bones; relative escape of the eyes, the cardiovascular system, the central nervous system, and the viscera; absence of constitutional disturbance, congenital transmission, and infantile dystrophies; failure to produce miscarriages and stillbirths, and to impair fertility and virility; and in the presence of gangosa, juxta-articular nodules, and patchy depigmentations. Both bejel and yaws tended to disappear when brought into contact with civilizing influences. In both the objective of treatment should be control of infectiousness, and bismuth was the drug of choice. On the other hand, bejel resembled syphilis in its constant involvement of the mucous membrane, in the complication of alopecia in many of its general pathological aspects, and in its extra-tropical geographical location. In general, bejel seemed to occupy an intermediate position between yaws and syphilis, and a clear-cut differential point was lacking. The view was defensible that the three forms of treponematosis had an identical aetiological basis and that their differences might be explained on epidemiological grounds if the influence of all environmental factors were known. To assume that bejel was yaws would obviously be of no help in this general problem, and it might be noted that physicians in the bejel region had generally assumed that it was the acquired syphilis of childhood.

Bejel had the character of an ancient disease, and probably presented a contemporary picture of syphilis as it existed in ancient times. The search in ancient medical literature for references to syphilis as a venereally acquired disease might therefore be aside from the point. Though 90 per cent. of the adults of the Bedouin village were syphilitic, they did not have venereal histories or lesions, nor the visceral pathology associated with venereally acquired syphilis. Possibly references to a childhood disease resembling bejel might be found in ancient medical writings. In bejel the treponema was allowed to go its own way, unrestrained by human intervention. From the biological standpoint bejel was syphilis in its "lowest terms," the archetype of this treponematosis. That syphilis had ceased to be a childhood disease and assumed a venereal character was not due to any tropism of the spirochaete towards the genitalia, but to the delimitation of its activities to a narrow field of bodily contact by the environmental conditions of civilized life. The clinical picture and the pathology of venereally acquired syphilis were related to the epidemiological fact that it was linked with sexual intercourse. The contribution of bejel to the knowledge of syphilis was twofold. It gave a clear picture of syphilis biologically unrestrained and free from human interference. It showed also that syphilis when propagated under the epidemiological conditions of yaws approached closely to yaws in clinical character, immunology, and pathology. This was strong evidence in favour of the essential identity of syphilis and yaws. A definite conclusion on this point waited upon further investigation of syphilis, bejel, and yaws in the fields of epidemiology, pathology, and animal experimentation.

Discussion

Professor BLACKLOCK pointed out that some years ago he began to doubt the validity of the criteria by which yaws was differentiated from syphilis. These views, when published, were much criticized. Dr. Hudson's work showed clearly that this syphilis in children—bejel—was not transmitted congenitally to the next generation and also that syphilis could not be distinguished from yaws simply on account of the genital site of the primary lesion in syphilis. Two questions arose in regard to modern treatment. First, would patients with yaws treated sufficiently to render the condition subclinical develop nervous sequelae later on? Secondly, would children cured of their yaws be susceptible to adult syphilis as they got older?

Colonel L. W. HARRISON was impressed by the similarity between Dr. Hudson's experience and that of others like Dr. Macqueen, who in Palestine had described very similar facts some three years ago. Macqueen mentioned in his bibliography that the earlier workers in Dalmatia, Croatia, Bosnia, Herzegovina, and Asia Minor had described much the same state of affairs in these countries. Colonel Harrison emphasized the importance of clinicians' differentiating between vascular syphilis involving the supporting structures of the central nervous system and syphilis affecting the parenchyma of the brain

and spinal cord. Kemp in Chicago concluded that inadequate treatment did not promote the incidence of neuro-syphilis. On the other hand, he knew that the development of meningo-vascular syphilis was promoted by inadequate treatment with arseno-benzol. The absence of miscarriage was interesting: he suggested that this was due to the mothers having acquired bejel in childhood. He also suggested that in bejel there might be a chancre on the tonsil or in the mouth, and asked whether unilateral enlargement of the submaxillary glands or of the submental glands was present.

Dr. H. S. STANNUS said that, although Dr. Hudson's observations formed a most valuable addition to the clinical knowledge of syphilis, he doubted if bejel was a link in the syphilis–yaws chain. Syphilis was not a purely venereal disease; Stokes had found, in some 20 per cent. of males and in 36 per cent. of females, that the primary chancre was extra-genital. One should speak of venereally acquired syphilis and non-venereally acquired syphilis, not of venereal syphilis and non-venereal syphilis, as was common custom. He was satisfied that the skin lesions of bejel were quite distinct from those of yaws. The fact that the mucous membranes of the mouth and naso-pharynx were always affected in bejel was most significant in regard to its relation to syphilis, since true lesions of the mucous membranes never occurred in yaws apart from "spreads" across muco-cutaneous junctions and some few instances due to direct inoculation. Adenopathy in bejel was generally not localized, as in yaws. Alopecia did not occur in yaws, while the positive Wassermann reaction in the cerebro-spinal fluid of bejel patients was very significant. In his opinion syphilis, including bejel, always presented characteristics distinguishing it from yaws.

Dr. H. M. HANSCHELL was convinced that yaws was not syphilis. In the case of bejel, infection might be transmitted by "droplet spray." The spirochaete in this disease did not produce a primary chancre and did not get through the choroid plexus into the central nervous system or traverse the placenta. One was therefore forced to conclude that it was a different spirochaete.

Dr. P. H. MANSON-BAHR expressed the opinion that, though syphilis diverged from yaws, they were originally the same disease. Dr. WILLIAM CORNER referred to his experience of bejel among the semi-nomadic Arab cultivators in Iraq, pointing out that practically 100 per cent. had mucous patches in the mouth at one time or another. Another common condition was leucoplakia of the cheeks and mouth. In his opinion venereal syphilis in the towns in Iraq was milder than European syphilis. Dr. C. C. CHESTERMAN differed from Dr. Stannus in considering that the lesions of bejel reminded him of yaws rather than of syphilis. He had observed 30,000 cases of yaws in fifteen years and had seen in that series practically every lesion described by Dr. Hudson in his paper. He has never seen a case of nervous system involvement in inadequately treated yaws patients.

In his reply Dr. HUDSON dealt specially with the question of treating the individual or of dealing with the disease as a community problem. Only a certain proportion of the community had open lesions at any one time, and if these were healed the number of new cases would rapidly decrease. Provided the disease manifestations were made subclinical and the individual rendered non-infectious he would take the risk of inadequately treated individuals developing neuro-syphilis. In yaws one started with the assumption that the disease could be cured by means of two or three injections of arsenical preparations and a few injections of bismuth, whereas they were taught that syphilis could not be cured in less than eighteen months' continuous treatment. This was not practical in village or desert nomads. He had observed no evidence of primary chancres in the mouth or throat, though he agreed there must be a primary lesion somewhere.

THE PSYCHOTHERAPY OF DELINQUENTS

A SURVEY OF THE YEAR'S WORK

The Institute for the Scientific Treatment of Delinquency held its annual general meeting at the house of the Pharmaceutical Society, with EARL DE LA WARR in the chair, who reported that the Institute had been making steady progress during the past year. Its importance was not to be measured solely by the number of cases it had treated, but also by the tremendous influence which it could exert on general thought in regard to delinquency. Any alteration in the present prison system, with its tyranny and hopelessness, must provide a practicable and properly thought-out alternative. The Institute was helping to mould the emotional revolt of the community into a constructive form. He pleaded, however, for a psychological approach not only to criminal but to social problems in general. Possibly the politicians of the future might have to undergo an examination to determine their psychological fitness to administer the nation's affairs!

Dr. DENIS CARROLL outlined the work which had been done, especially at the Institute's clinic, during the year under review. The staff had recorded several cases as "cured," meaning that treatment had been stopped and the patients would in all probability commit no further offences. Other cases had been discharged improved—"improved," not as criminals but as citizens. A frequent criticism of the work was that it merely taught criminals to avoid detection. This was not true. On the contrary, once treatment had progressed a certain distance the psychologist could be fairly certain whether the patient was intending to commit further offences or not. The staff were therefore confident that they were adequately safeguarding the public even when the patient was at large. There was need for an in-patient centre, or for a greater automaticity in facilities for treating patients in or from prisons. A minority of improved cases were discharged because, while no more could be done for the patient, he was not likely to commit any more offences. Others discharged themselves because their probationary period was over or they had to leave the district. When a patient was discharged not improved he would not necessarily return to crime, but there was no scientific reason for supposing that he was cured.

Avoidable Difficulties in Treatment

Illustrating his argument by actual case histories, Dr. Carroll pointed out some of the directions in which the courts could help the medical psychologist if they wished. A girl was treated during a period of probation: she was not particulary neurotic and her mental disease, which was curable, was not the cause of her delinquency. Her cure would have required about two years; her probation period was six months. She was not a very willing patient, and at the end of the six months she broke off treatment. Some time later she was convicted of a repetition of the offence. The medical psychologist told the court that, although the clinic could not promise a cure, they were hopeful of one if a sufficient degree of compulsion could be applied to bring the girl under continuous treatment for two years. They tentatively suggested three years' probation, or, if the court saw fit to imprison her, a sentence long enough to enable her to be adequately treated. The court unfortunately gave her six months. It was fairly certain that she would not return for treatment unless she were quite unable to obtain work. The opportunity had therefore been wasted, for she would almost certainly repeat her offences. Dr. Carroll said that he did not blame the court, for the Institute had not yet made its aims and principles clear to all magistrates. This magistrate had declared that the girl had been given a chance and had not taken it. This was an unfortunate remark to make to a person who needed treatment, without which she could not be expected to make use of opportunities.

In earlier years psychotherapists had supposed that compulsion was incompatible with successful treatment. This view had now been modified, for so far from being a hindrance compulsion had been found in some cases to be indispensable. The court could help the clinic by making treatment a condition of probation, and by imposing so long a period of probation that the patient could not see the end of it as sufficiently near to encourage him to mark time until it came. On the whole the courts had been highly co-operative; they were the biggest source of the clinic's cases and its most enthusiastic supporters. Continuity of treatment was everything, and one solution was to treat the patient in gaol. This was impracticable with an unpaid medical staff who could not find time to visit a prison regularly. It would, however, enable the clinic to treat hopefully a number of cases of serious crime.

A Statistical Approach

Published statements declaring that juvenile delinquency had increased were amateur in authority, Dr. Carroll said, and were not supported by scientific evidence. The only correct approach to the problem would be an examination of all the available data by a committee of competent scientists, including psychiatrists, statisticians, and sociologists, who should be given every facility by the Government Departments concerned and have access to all the available data of the type of offences, the type of punishments and probation awarded, and the results obtained, correlated where possible with the social history and with the findings of a psychological examination. If several thousand cases were followed over a long enough period the conclusions would be reliable, and the committee could state with confidence what social factors operated in producing juvenile delinquency and in increasing it, and what effect the modern methods had. They could also answer such questions as whether birching was good or bad, and, if good, for what kind of cases. He hoped that the Home Office Committee on Corporal Punishment would recognize the need for this kind of data. If it were a committee of the usual kind its findings would probably not have much value. Such an investigation could not cost more than £20,000, and would probably not cost more than £3,000 or £4,000.

The causes of delinquency included precipitating or "trigger" causes, predisposing causes, and specific causes, in the absence of which no circumstances could produce delinquency. It was therefore futile to speak of delinquency as due to such causes as boredom and excitement over films, for these were purely secondary. In ten or fifteen years psychologists might discover the predisposing factors in school children. Alfred Adler had for some years been given access to all the school children in Vienna, and had picked out those who were predisposed to delinquency. Under a new political regime these facilities had been withdrawn. Scientifically the connexion was not proved, but in fact juvenile crime had much decreased during this experiment and had risen again after it was discontinued. A similar experiment should be carried out in this country. A trained psychiatrist would have to be employed in each group of schools at about £1,000 a year, but the result would be worth millions to the nation. It was highly probable that delinquency and neurosis had a common cause connected with the difficulties of puberty.

Mr. J. J. MALLON spoke of the work of the juvenile court at Toynbee Hall and of the splendid pioneer work of Sir Henry Clarke Hall, whose colleague he had been. It was, he said, almost invariably absurd to regard a young child as a criminal at all. There was usually some explanation of the offence. A small boy often committed a crime because someone had hurt him and he must hit back. A classical example was the incorrigible young offender whom Clarke Hall had quickly and completely converted by promising to send him to sea. Probation officers did wonderful work, but probation or a period in an approved school could not cure by itself. The medical psychologist's contribution was essential, and his advice should be taken before a child was sent to an approved school for a long term.

In conclusion, the CHAIRMAN expressed his gratification that the scientific treatment of delinquency had penetrated even into the darkest recesses depicted by Mr. Albert Crew, the Recorder of Sandwich, and Sir Hubert Bond, Commissioner of the Board of Control, both members of the council. He hoped that sooner or later the value of the work would penetrate to that darkest of all recesses, the British Government. A new idea had always to be developed in England by a voluntary society, and the Institute was doing arduous work of the utmost value.

THE ADRENAL CORTEX*

In a discussion which followed the reading of Dr. W. N. Kemp's paper on the adrenal cortex, delivered recently before the Osler Society, Dr. KINSMAN commented on the "thymic syndrome," stating that in his opinion the "breath-holding spells," so alarming clinically, are part of that syndrome. "A child may have as many as ten or twelve such spells each day. The child holds its breath, turns blue, and collapses. The spells are most alarming. Radiographs in every case show an enlarged thymus. Speaking from my own experience, *x*-ray treatment does not clear up these symptoms. It does not reduce the size of the gland. I have now seven children over 2 years of age who have had marked breath-holding spells—one had ten or twelve each day. The most of them had had *x*-ray examination, which showed marked enlargement of the thymus. A series of *x*-ray treatments made little or no improvement in the spells. The children were then put on adrenal cortex, and in every case showed marked improvement. The most extreme case was at once reduced to one or two mild spells each day."

Dr. MATTHEWS said he had had two children, both 5 years old, but with no symptoms of status lymphaticus. The chest plates of each showed a very large thymus. They were given suprarenal cortex, and one month later the thymus in each could hardly be found. He hoped to try adrenal cortex for breath-holding spells, as he had never been satisfied with *x*-ray treatment in that type of case.

Dr. SPOHN spoke on the possible aetiology of the thymic syndrome. While he thought that there was some relation to thyroid dysfunction, he was sceptical of the possibility of adrenal cortical dysfunction being aetiologically related to the thymic syndrome (status lymphaticus). Dr. Spohn explained the clinical results of cortical therapy reported by Drs. Kinsman and Matthews as possibly due to some pharmacodynamic action of adrenal cortical therapy: "Because quinine cures malaria we cannot argue that malaria is caused by the absence of quinine." He pointed out that some cases of the breath-holding syndrome recover spontaneously. He did not think that the presence of an enlarged thymus in dogs after adrenalectomy was of any significance, because from his experience in post-mortem examination of pups thymic enlargement is a normal finding. Dr. Spohn did think that cortical therapy might possibly be of therapeutic value (for pharmacodynamic reasons) in cyclic vomiting of otherwise healthy children.

Dr. TAIT, in contrast to the first two speakers, spoke highly of the benefits of *x*-ray treatment in cases of the thymic syndrome. In his experience as a roentgenologist he stated: I have never seen symptoms persist where a full course of treatment has been given, nor have I known of deaths resulting from enlarged thymus after *x*-rays had been given. . . . When you have something (treatment) that is specific I would suggest caution where there is any danger.

* An abstract of the discussion (from the records of the Osler Society, Vancouver) on Dr. W. N. Kemp's paper, which appears in this issue at page 1194.

Dr. PITTS showed two specimens from the pathological museum, one a normal pair of infantile adrenals and the other a decidedly hypoplastic pair taken from a foetus with anencephalus. He asked the speaker to make some comment on these.

Dr. CLEVELAND raised several questions: Why do the experimental animals show a coincident fall in chlorides and glucose? Is the cortical hormone active when taken by mouth? How does one account for the beneficial results of adrenal therapy (whole gland) reported by Dr. Pusey in a case of acne with dysmenorrhoea? Are there any preparations of cortin which can be used by mouth or injection that are not of prohibitive price for patients of small means?

Reply to the Discussion

Dr. KEMP said in his reply: I wish to thank Dr. Kinsman for giving adrenal cortical therapy a trial in cases of the so-called thymic syndrome, and also Dr. Matthews for showing the efficacy of the cortex by mouth in reducing the size of the markedly enlarged thymus glands in a small series of cases. While it is true that Dr. Kinsman's series of cases is small, yet it is a beginning, and in my opinion is very suggestive that the thymic syndrome (so-called) is in reality one form of clinical cortico-adrenal insufficiency. Dr. Spohn is sceptical of the part that I have assigned to the adrenal gland in cases of the thymic syndrome. However, I would point out that Dr. Spohn has never tried this therapy in actual practice—he dismisses its significance on theoretical grounds alone. He says the beneficial results reported by Drs. Kinsman and Matthews may be explained on pharmacodynamic principles. Would he so explain the benefits of thyroid therapy in cretinism and myxoedema? How can you explain the relief of "symptoms" by the use of cortin in adrenalectomized animals on pharmacodynamic grounds? The answer is that in the cases of the thymic syndrome treated with cortex and reported by Dr. Kinsman, as in clinical myxoedema and experimental cortical insufficiency as well, the results of hormone administration are probably true examples of replacement therapy. Dr. Spohn states, and it is a well-known fact, that some cases showing breath-holding symptoms improve spontaneously. This is as one would expect from a knowledge of adrenal development in infancy if cortico-adrenal dysfunction were the cause. Dr. Spohn was sceptical of the significance of the enlargement of the thymus gland invariably present in the dogs adrenalectomized by Banting and Gairns, as reported in this paper. Dr. Spohn has frequently made post-mortem examinations on puppies, and they have all had enlarged thymuses. The answer to this criticism is that the dogs used in the experimental adrenalectomies under discussion were not pups, and, secondly, the thymic hyperplasia following adrenalectomy is definitely emphasized by such astute observers as Dr. F. Banting and his co-worker Dr. Gairns. I note that Dr. Spohn thinks that cortical therapy may be of value in cyclic vomiting, possibly from a pharmacodynamic action. The specimens of adrenal hypoplasia in a case of anencephalus demonstrated by Dr. Pitts are very interesting. In anencephalus the pituitary gland is usually absent—hence the adrenals, without the adrenotropic hormone of the pituitary, do not develop normally. Dr. Cleveland has raised a series of interesting questions which I will attempt to answer briefly. In adrenalectomized animals there is a fall in blood chlorides early, due apparently to the inability of the kidney tubules to resorb sodium chloride. The fall in blood sugar is more of a terminal phenomenon, and is probably related to hepatic dysfunction incidental to the loss of cortin. The cortical hormone is active by mouth, although much larger doses must be given. In regard to the use of whole adrenal gland in the case of acne and dysmenorrhoea, one can simply say that there undoubtedly exists a close functional relation between the adrenal cortex on the one hand and the gonads and the pituitary gland on the other. To me it is quite reasonable that in certain cases, such as Dr. Cleveland cited, ovarian and pituitary function are improved by the administration of cortical extract. Acne is a frequent accompaniment of pituitary dysfunction—hence the improvement in pituitary function due to the administration of the cortical extract may account for the cure of the acne. Dr. Cleveland mentions the high cost of cortical extract. This is unfortunately true. As someone has said, only a millionaire can afford to have Addison's disease. Dr. Cleveland's question in regard to the aetiological differentiation of the types of hirsutism in the female is somewhat beyond the scope of this paper; suffice it to say that in such cases of hirsutism the differential diagnosis is between pituitary basophilism (Cushing's syndrome), adrenal tumour, arrhenoblastoma of the ovary, and tumour of the thymus gland. The thyroid is not usually "in the picture" at all.

MODERN ADVANCES IN OBSTETRICS

At the invitation of the Torquay and District Medical Society, a joint meeting with the Devon and Exeter Medico-Chirurgical Society and the Plymouth Medical Society was held at the Torbay Hospital on May 13, with Dr. J. M. JARVIE, ex-president of the Torquay Society, in the chair. The first of three opening addresses in a discussion on modern advances in obstetrics was given by Dr. MARSHALL SCOTT of Exeter.

Analgesia in Normal Labour

Dr. Scott concerned himself mainly with the conduct of normal labour. In the first instance he touched upon the importance of the psychological preparation of the patient from the earliest ante-natal visit, when anxieties as to the pains and dangers of childbirth might be allayed by a promise that there would be no suffering sufficient to constitute a painful memory afterwards. This, he said, was all that could be promised to-day if drugs were not to be pushed to a point dangerous to both mother and child. Insomnia and restlessness might be associated with anxiety in the last month of pregnancy; chloral hydrate, say 15 grains, given nightly during the last fortnight might relieve this, and also have a favourable influence on cervical dilatation. The requirements suggested by Reynolds in respect of drug administration in the first stage were that there should be a prolonged anaesthesia with a minimum of repeated dosage, sleep between the pains, no prolongation of the first stage, and no ill effect on the child. In the second stage drugs should be selected with a view to a short induction period, rapid elimination, avoidance of depression or inhibition of uterine contractions, harmlessness so far as the child was concerned, and simplicity of administration.

The accoucheur should have a clear idea as to the aim of his treatment, whether amnesia, analgesia, anaesthesia, or a combination of these conditions. He described his own practice in some detail.

A mixture of potassium bromide and chloral hydrate with 10 minims of tincture of opium was given at the onset of pain. This could be repeated in two to three hours if necessary, or the administration of gas and air by Minnitt's apparatus begun. If cervical dilatation should prove unexpectedly slow the inhalations could be interrupted, and rest assured with an injection of omnopon and scopolamine. In starting to administer gas and air he was guided more by the extent of pain than by the degree of dilatation of the cervix, though in a primigravida the onset of acute pain was found to coincide usually with a three-quarter dilatation. Gas and air sufficed for delivery in about 75 per cent. of his cases, a figure according with that given by the British College of Obstetricians.

In prolonged labour due to inefficient contractions, in some cases with cardiac or pulmonary complications, in cases in which gas and air proved inadequate, and occasionally in trial labour, he gave omnopon and scopolamine, followed in about

two hours by rectal paraldehyde. The dosage of paraldehyde was regulated by body weight; a minimum of 8 drachms was given admixed with olive oil in the proportion of one ounce of the latter to each drachm of paraldehyde.

Coming to the technique of delivery, Dr. Scott said that he always wore a mask, and in addition to putting on clean dry gloves he swabbed them with neat dettol for three minutes when any vaginal investigation was necessary. Whenever possible he preferred a rectal examination as a method better tolerated by the patient, which allowed dilatation of the cervix to be followed readily in the majority of cases, permitted repeated examinations without fear of infection, and which saved time, material, and manipulation.

Some Obstetrical Difficulties

Dr. Scott then discussed the advantages of a timely Caesarean section in primary uterine inertia as against allowing the case to drift into a condition of dangerous exhaustion. Judgement in such an instance was difficult to make, but rapid deterioration in the general maternal condition seemed to him an indication for abdominal section. Leyland Robinson and co-workers of the Liverpool school had published a small series of cases which suggested that oestrin might be valuable in promoting more powerful and regular contractions in these cases of inertia.

He referred to the anatomy of the pelvic floor and the damage resulting from violent deliveries or from prolonged over-distension when the head remained low in the pelvis for many hours. He advised the carrying out of an episiotomy in nearly every case in which the head had been visible at the vulva for half an hour. The incision, under general or local anaesthesia, was made from the fourchette and extended some three-quarters of an inch postero-laterally. During the puerperium, he concluded, an effort must be made to maintain the tone of the musculature of the pelvic floor by the blending of rest and exercise.

Toxaemias of Pregnancy

Dr. CHARLES CROFT spoke "as a physician who invades obstetrics" rather than as an obstetrician. It had been a matter of some wonderment to him that a study of the toxaemias seemed to have been taken up more by the academic type of physician, with leanings towards biochemistry or endocrine therapy, than by the practising obstetrician. He believed that there was but one toxaemia of pregnancy, which showed itself in sundry forms; impaired renal function, perhaps with degeneration of liver cells, was the associated pathological condition. There seemed to be no reason for regarding the megalocytic anaemia found in certain cases of pregnancy as related to toxaemia, and when in the toxaemia of pregnancy an anaemia of the secondary type occurred he regarded it as an associated condition rather than as a direct result of the toxaemia. Accidental haemorrhage, although not infrequently occurring in the toxaemias of pregnancy, could be explained by the presence of the raised blood pressure accompanying the toxaemia rather than by the latter *per se*.

In pregnancy there were three types of cases of albuminuria distinguished by Comyns Berkeley, Walker, and Dodds: (1) albuminuria without symptoms, of a probably functional type, as found in 5 to 10 per cent. of normal people; and albuminuria with symptoms, which was divided into (2) pre-existing albuminuria in a woman suffering from chronic nephritis, and (3) the albuminuria of pre-eclamptic toxaemia. The differential diagnosis of the two latter conditions was simple if the urine had been investigated during the earlier months of gestation, and in the first of them it was laid down by the same authorities that with a blood urea reaching 40 mg. per 100 c.cm. of blood pregnancy should be terminated.

A placental origin of the toxaemia was suggested by the fairly common occurrence of toxaemia in cases of hydatidiform mole, in which there was no foetus to consider as a factor. It had been stated that the majority of fatal cases of eclampsia occurred in July, August, and September, but the significance of this was not clear. Although albuminuria was held to be the common denominator of the pregnancy toxaemias, Dr. Croft considered that this should be replaced by the factor of raised blood pressure, which would often be found before the onset of albuminuria, headache, and vomiting, although not always before the appearance of oedema. A rising blood pressure pointed to the onset of eclampsia with more certainty than a raised reading which was stationary; eclampsia could occur with a blood pressure of 165 mm. Hg, or be absent with one as high as 200 mm. Hg.

Diagnosis and Treatment

The only clinical tests of value in determining the onset of liver damage were those establishing the presence of bile pigment in the blood or urine. Treatment was urgently necessary in any case in which vomiting and anorexia were continuous and resistant to routine measures, or when there was a progressive rise in blood pressure or a diminished urinary output, or anaemia in association with any of these.

The only hope there was of securing even moderately early treatment in cases of fulminating eclampsia was by giving a discreet warning to patients in respect of symptoms which might arise, and which should be reported immediately. The recent investigation by the Ministry of Health revealed that "of seventy-three deaths from eclampsia, in twenty-one instances the medical attendant was not considered to have given sufficient attention to the patient, either because of his neglect to examine the urine and estimate the blood pressure, or to treat the patient himself, or to secure treatment for her." As to what was regarded as adequate treatment we read that "monthly visits of women to the clinic are desirable during the early months of pregnancy, twice a month from the fifth to the seventh month, and later at weekly intervals until the time of confinement." Dr. Croft added that this routine seemed to be rather burdensome for the vast majority of cases.

In considering preventive treatment he said that irrespective of whether a free supply of calcium protected against toxaemia or not, it was logical to ensure a sufficiency of this salt and of vitamin D to aid absorption in the dietary of the pregnant woman. It was calculated that the woman required 1.6 grammes of calcium daily, and that in the last twelve weeks of gestation the foetus required 25 grammes. Thus the customary one pint of cow's milk was inadequate. Once the toxaemia was established immediate transfer from the clinic to medical supervision at home was imperative, the patient being ordered to have complete rest in bed. A milk diet should be prescribed with vegetables, especially those supplying iron. Despite the strictures of Witts he recommended saline aperients, and also advised calcium, alkalis, and glucose. Calcium given either by intravenous or intramuscular injection had been proved of value in eclampsia. Caesarean section was justifiable only on very rare occasions, showing, as it did, a substantial mortality as against the Stroganoff figure of 10 per cent.

Habitual Abortion

Dr. P. A. MCCALLUM (Torquay) said that in the treatment of habitual abortion there had been comparatively recently a very definite advance. It had been found that in the human subject the corpus luteum was not essential to the progress of pregnancy after the eighth to the twelfth week—that is, after the placenta had developed as an independent organ. Clauberg had established that the destruction of the corpus luteum did not lead to termination of pregnancy after this period. From this it would appear that the placenta took over the function of the corpus luteum in producing a progestin-like hormone. The placenta in the later stages of pregnancy supplied the

luteinizing hormone and the progestin, for the production of which in the pre-gravid and early gravid periods the anterior pituitary and ovary had been responsible. Further investigations had shown that in some cases of threatened abortion with evidence of a still living foetus the Aschheim-Zondek reaction was negative. From this was argued absence of the luteinizing factor, and the administration of prolan or of progestin developed as an obvious line of treatment.

Dr. McCallum then mentioned the importance of a sufficiency of vitamin E in the treatment of habitual abortion. Routine examination should exclude pelvic deformity, uterine displacements, cervical tears, tumours, chronic nephritis, and syphilis. These conditions having been excluded, he gave injections of progestin, beginning with 2 mg. (2 international units) twice weekly. This was continued up to the thirty-second week. When there was any sign of abortion threatening the patient was put to bed and daily injections of 5 mg. of progestin given for one week. In addition to the injections in preventive treatment, he gave one teaspoonful of wheat-germ oil daily for six months. Thyroid extract 1/2 grain each night was helpful, and calcium in some form was necessary, with a diet rich in vitamins. Rest in bed during the dates when the menstrual period would have been expected, a quiet life, and sexual rest were important considerations.

Disproportion

In discussing disproportion Dr. McCallum said that in the slight cases the diagnosis was by no means a matter of certainty. Little or no dependence could be placed upon the measurements of the internal conjugate. On the other hand, radiographic mensuration with improved technique was becoming wonderfully accurate. Nevertheless it was still impossible to forecast the degree of possible moulding on the part of the foetal head, the extent of relaxation of the pelvic joints, or the strength of the uterine contractions. Thus an opinion could not be arrived at with certainty in many of these cases until labour had actually begun, but he advised a careful examination at the thirty-sixth week. If the head was engaged or engaging a normal labour might reasonably be expected. If the head was still floating an attempt should be made to push it into the pelvic brim. Failure to engage and obvious overlapping, the head being flexed, was a clear indication for Caesarean section. If the head could be pushed in or the overlap was slight he would advise re-examination in two weeks' time, under anaesthesia if need be. If disproportion was now absent or in a slight degree he would allow a trial labour. He emphasized the importance of remembering that one of the commonest causes of an unengaged head at the end of the term was the incomplete flexion associated with an occipito-posterior position.

In the discussion which followed Drs. H. K. GRIFFITH, W. A. ROBB, A. A. GAIRDNER, R. S. COLDREY, R. A. LATTEY, G. M. GREIG, C. MACVICKER, and HORTON DATE took part.

BIOCHEMISTRY OF MILK SECRETION

The biochemistry of milk secretion was the subject of a paper read before the Royal Society of Arts on May 26 by Professor H. D. KAY, director of the National Institute for Research in Dairying, University of Reading. He also touched on the control of milk composition.

Structure and Blood Supply of Udder

Professor Kay first described the structure of the udder, with its four separated quarters with separate teats, through the end of which passed a narrow channel to a small cistern connected with a larger storage cistern in the gland proper. This larger cistern was connected again by some eight to twelve milk ducts which, after successive branchings, ended in minute collecting tubules, with an enlargement or alveolus at the extremity of each, in which the milk was actually secreted. All the constituents of milk were brought to the mammary gland by the blood; indeed it was sometimes claimed that milk had evolved from a blood transudate. Two large arteries in the cow each supplied one half of the udder, and were divided into a number of smaller arteries and these into arterioles, and finally into capillaries, penetrating into every part of the mammary tissue and providing each alveolus and secreting cell with a rich blood supply. The blood in the capillaries brought with it not only the precursors from which the cell manufactured all the specific milk constituents but also the sugar required to provide energy for the synthesis and the oxygen necessary to burn the sugar and keep the cells in good functional order. These materials diffused out of the blood stream into the small spaces between the cells, and the cells took up from this liquid the substances needed for secretion and respiration and restored to it the waste products of their activity, which were eventually returned to the venous circulation.

Milk Secretion and Composition

The milk secretion was undertaken by the cells lining the alveolus, and their changes in shape during secretion might be observed microscopically. Beginning almost as cubical cells, they increased in length, granules and small fat globules accumulated, and presently something occurred—probably a rupture of the distended cell wall—whereby the secretion was extruded into the alveolar space as milk, the cell then returning to its original size and the cycle recommencing. With several repetitions of the cycle the storage spaces in the gland became full of milk. Differences in the composition of milk, said Professor Kay, were bound up with the differences in the stage of development at which the young were born. In species such as the horse, in which the newly born were advanced in development, the protein, fat, and bone-forming salts of the milk were less and the sugar content greater; in species in which the young were helpless at birth the protein and fat were high and the lactose low.

The lecturer stressed as an interesting biochemical fact the considerable degree of constancy in the composition of milk of the same species, no matter, within limits, what food was given to the lactating animal. The cow possessed a mechanism whereby she could produce milk, if need be, at the expense of her body tissues. In health the constituents of the blood were maintained at a constant level, and the secreting cells of the mammary glands were more efficient than those of the other tissues of the body in taking what they needed from the limited supply in the circulating blood. He described it as astonishing that on a diet deficient in lime or phosphorus the mammary gland continued to secrete milk quite rich in these elements at the expense of the lactating animal's bones. The rarefaction of the mother's bones might continue until spontaneous fractures ensued. It was a fundamental biochemical question, but an unsolved one, how, even when the skeletal and muscular framework was suffering, the blood level of lime and certain other essential food materials remained almost unimpaired; also what was the nature of the process by which the mammary cells, especially of early lactation, exercised this preferential taking up of materials from the blood.

Biochemistry of Low Quality Milk

The fact must be accepted that in many instances cow's milk might be below the legal standards—set by the regulations of 1901 at 3 per cent. fat and 8.5 per cent. solids other than fat—and yet be genuine milk. From the consumer's point of view this was of real importance, for he might be obtaining a lessened nutritive value by 10 or 20 per cent. The quantity of milk which the modern "good" cow was expected to secrete might be 800 to 1,000 gallons per lactation (say 300 days); in other words, the total solids which the modern cow, as

a result of generations of careful selection, almost entirely for volume production, secreted in her milk in a year (during a large part of which time she was also in calf) was four times the weight of the solids in her own body. The strain on the physiological and biochemical equilibrium must be very great. Some 300 to 400 gallons of blood circulated through the mammary gland for every gallon of milk secreted, and a cow might secrete four to six gallons a day.

The lecturer considered it possible that breeding for volume was one of the factors responsible for low quality milk. An animal faced with this unnatural physiological strain would tend to avoid it in part by secreting more water and less of the other physiologically costly materials in her milk. Another factor was the widespread incidence of udder disease. Mastitis had been shown to lead to a marked change in the composition of milk.

Hormones and Milk Secretion

The growth of the mammary gland was doubtless largely controlled by hormones, oestrin and progestin being mainly concerned. Injection of the pituitary hormone prolactin also usually brought about a copious secretion of milk. The lecturer described an experiment in which thyroxine had been given to the cow. The result of its administration in the form of dried thyroid gland, and especially as the pure crystalline hormone, was to increase the yield and improve the chemical composition of the milk, the percentage of fat increasing by some 16 per cent.; even the amount of non-fatty solids was raised. The total yield of butter-fat per day was increased in one of the cows by nearly 50 per cent.

A minor constituent of milk—namely, the enzyme phosphatase—had been found to be an interesting biochemical index of the efficiency of mammary secretion. There was least concentration of phosphatase in milk at the height of normal lactation. After administering thyroid gland or thyroxine there was a marked fall in milk phosphatase, a fall which persisted while the quantity and quality of milk remained high. When the thyroxine was withdrawn milk secretion fell and the phosphatase concentration rose again.

Vitamin Content of Milk

Finally Professor Kay touched upon changes in vitamin content. One significant finding of nutritional importance was the difference in respect of vitamin A content as between summer and winter milk. Had Hopkins used certain types of winter milk for his early experiments it was possible that the discovery of vitamins might have been postponed. Summer milk or butter had some three or four times the vitamin A potency of milk or butter from cows on ordinary winter feed. The content in winter butter of antirachitic vitamin D was from one-half to one-third that of summer butter. This was due to the effect of sunlight on the cow, not on the grass she ate. Winter butter could easily be brought to summer strength in vitamin D by feeding irradiated yeast, cod-liver oil, or cacao shell to the lactating cow. Milk was a poor source of vitamin C, but it lost what it did possess of the anti-scorbutic vitamin when exposed in glass bottles to daylight for a very few hours or to sunlight. The vitamin content of milk could therefore be controlled to a considerable extent in the case of A and D by feeding the lactating animal with food rich in these vitamins, and in the case of C by keeping the milk so far as possible shielded from light.

The ninth International Congress of Psychotherapeutists will be held at Copenhagen from October 2 to 4, when papers will be read on general practice and psychotherapy, the lines of teaching this subject and other cognate topics. Notifications of papers to be read should be sent to Professor C. G. Jung, Kussnacht, Zurich, before June 1. Further information may be obtained from Professor Bjerre, 4, Engelbrektsgatan, Stockholm.

Local News

ENGLAND AND WALES

Joint Tuberculosis Council

At the May meeting of the Joint Tuberculosis Council twenty-two members were present. The honorary secretary, Dr. Ernest Ward, announced that 750 copies of the council's memorandum *Tuberculosis Among Nurses* had been printed, and the Medical Research Council was considering republication of the memoranda by Drs. W. H. Tytler and Peter Edwards on *The Microscopic and Cultural Examination of Sputum*. After a discussion on the Empire Conference on the Care and After-care of the Tuberculous, it was decided to form a committee comprising Dr. S. Vere Pearson (convener), Professors W. W. Jameson, and S. Lyle Cummins, with Drs. Jane Walker, J. B. McDougall, F. R. G. Heaf, and F. W. Goodbody, "to consider what help this council can give the Colonies in their effort to control tuberculosis." The question of "holidays with pay" was raised, and it was decided to place this subject on the agenda for the next meeting.

Work of a Medical Charity

The annual general meeting of the Society for Relief of Widows and Orphans of Medical Men was held at 11, Chandos Street, Cavendish Square, W., on May 19, with the president, Mr. V. Warren Low, C.B., in the chair. The report and accounts for 1936 were presented and adopted. The total income for the year was £5,392 2s. 8d. During 1936 twenty-one new members were elected, nine died, and one resigned. The total membership on December 31 was 275. During the year £5,275 was distributed in relief to the fifty-nine widows and nine orphans in receipt of grants. This is an increase of £1,000 over the previous year, due to the increase of the number of widows. One widow who died during the year had been on the funds for fourteen years, and had received from the society a total sum of £1,390. Her husband had paid a life subscription of £26 5s. on election to membership. This is but one case which illustrates the advantages of joining the society. Two legacies were received during the year, one of £500 and the other of £9. Special grants amounting to £217 10s. were made to orphans to enable them to study for some business or professional career. These grants were made from the Brickwell Fund, which is utilized for this purpose. One orphan in receipt of a special grant from this fund died during the year. She had been in a special hospital for the past six years, and had received during that time £402 12s. The president drew the attention of the meeting that in 1938 the society would be celebrating the 150th anniversary of its foundation. Membership of the society is limited to registered medical men who at the time of their election are resident within a twenty-mile radius of Charing Cross. Only necessitous widows and orphans of deceased members are granted relief. The secretary will forward full information to any medical man who may desire to become a member if he will apply to the offices of the society, 11, Chandos Street, Cavendish Square, W.1. All legacies are funded, and the funded capital now amounts to over £140,000. Once money is invested the income alone may be utilized for the payment of grants. The capital may not be realized for current expenses. A cordial vote of thanks was passed to the editors of the medical journals for publishing notices for the society.

Rheumatic Heart Disease in Children

An account of a courageous enterprise appears in the report for 1936 of the Children's Heart Home at Lancing in Sussex, where over 250 children were admitted last year, the majority of them from London hospitals. This

home, which is very pleasantly situated in gardens by the sea, was first used for children who needed ordinary convalescent treatment. Then, seven years ago, the rheumatic clinic at the Hospital for Sick Children, Great Ormond Street, reserved twenty beds in the home for children suffering from rheumatic affection of the heart, and the results were so good that it was decided to allocate all the beds to the one complaint, Great Ormond Street reserving a further number, and beds also being reserved for other hospitals. A school was started for the children, and in 1931 was recognized as a special school for child sufferers from rheumatic heart disease. A large part of the annual income is, of course, derived from hospitals and public authorities on account of services rendered to patients, but there is scope for voluntary giving, and last year the income from this source was increased by some £500 as the result of a broadcast appeal. The home contains seventy-three beds, and the average residence of the children is 100 days. The cost of each patient per week, including establishment and financial charges, is £1 3s. 5d. on the average. Although few of the patients received are Sussex children, the home appears to enlist a great deal of local sympathy and interest.

INDIA

Indian Institute for Medical Research

The first annual report of the Indian Institute for Medical Research, Calcutta, covers the period from January 1, 1935, to March 31, 1936, and includes an account of the work in the diagnostic section and the departments of bacteriology, protozoology, biochemistry and nutrition, and chemistry, immunochemistry, and chemotherapy. As the result of study of the immunity problems connected with cholera and typhoid fever a potent anti-cholera serum has been produced, and further investigations are proceeding with reference to the concentration of the toxin and antitoxin concerned. A preliminary note by Dr. H. Ghosh about this work appeared in the *British Medical Journal* of January 12, 1935, and a report of the further advances, by the same author, was published in the issue of May 9, 1936. It now seems probable that there are two different kinds of toxin in cholera, an endotoxin and an exotoxin, which jointly produce the characteristic symptoms. Predominance of one or the other determines whether the clinical picture is more particularly that of an early onset of vasomotor paralysis or of excessive purging. The mortality among the cases treated with the serum was 10.65 per cent., as contrasted with 21.6 in the remainder. Preliminary researches with typhoid toxin indicate the possibility of producing an effective anti-typhoid serum. Evidence has been forthcoming that the common bowel disorders of the natives of Bengal are related to the usual high carbohydrate contents of the dietaries, which give rise to fermentation and hyperacidity in the intestine, with consequent toxaemia, especially in children. In the department of protozoology a systematic study is in progress with regard to the problems of cultivation and immunity, which have been but little considered hitherto. The objective has been to discover whether antigens consisting of pure parasitic bodies obtained by cultivation of protozoa or extraction of their protoplasm can induce immunity in the body of the host and so be of prophylactic and therapeutic value. An oriental sore vaccine has been prepared from freshly isolated strains of *Leishmania tropica*, and has been found to have a high therapeutic value. An intradermal skin test for this disease has been devised. Vaccine treatment is also proving useful in post-kala-azar dermal leishmaniasis. Another investigation is proceeding into the possibility of cultivating malarial parasites on suitable media in order to produce a prophylactic malarial vaccine. An attempt is being made to desensitize cases of eczema, asthma, urticaria, and pruritus with suitable antigens, and a few patients have been treated satisfactorily with urinary proteose. The department of biochemistry and nutrition has been largely concerned with vitamin C, the nutritional problems of middle-class families, the nature of the oxytocic hormone of the pituitary gland, and the respiration of bacteria. A survey of the nutritive values of Indian foodstuffs and dietaries is being conducted systematically. Certain common Indian fruits have been shown to contain unexpectedly large quantities of vitamin C, and it has been demonstrated that the amount of this vitamin in human milk can be appreciably raised by appropriate dieting. The dietaries of middle-class families in Bengal are markedly deficient in proteins, vitamins A and B complex, calcium, and phosphorus. The department of chemistry has been trying to elucidate the mechanism of antigen-antibody combination from considerations of their rate of diffusion, osmotic pressure, viscosity, and the Tyndall phenomenon observed in their solutions. Equations have been defined which account satisfactorily for the neutralization of streptolysin, tetanolysin, cobra haemolysin, staphylolysin, diphtheria toxin, and crotalus toxin by their corresponding antibodies, as well as to the adsorption of specific agglutinins by typhus bacilli and the vibrios of cholera and to the adsorption of specific haemolysin by the erythrocytes of the ox and sheep. The diagnostic section has shown that there was a great increase in the incidence of amoebic infection during the year under review. Improvements in certain diagnostic techniques have been suggested, and many doubtful cases of leishmaniasis were identified by special cultural methods.

Madras Ophthalmic Hospital

The annual report for 1935 of the Government Ophthalmic Hospital, Madras, shows that, as usual, conjunctivitis and various forms of cataract were the most common diseases; glioma and epithelioma were the two most frequent tumours, and 8,149 operations were performed. The daily average number of patients in 1935 was higher than in the previous year, and those who could not be admitted to the wards were accommodated on the verandas. Radium treatment was used in seventy-eight cases, mostly of epithelioma and trachoma. Special training was given to 254 medical students, including 150 who were candidates for the M.B., B.S. examinations. In addition, thirty-seven post-graduate students attended the practice of the hospital. No major building operations were undertaken during the year under review, but various minor repairs and improvements were effected in the hospital itself and the residential quarters.

SCOTLAND

Health of Scottish Ports

At the annual conference of the Association of Port Sanitary Authorities held recently in Glasgow, Bailie James Crawford, who presided, said that the living quarters for the crews on ships now being built on Clydeside were greatly improved in situation, design, and comfort, even in excess of the standard desired by the association. The latter was freely consulted by the Government, and was also in touch with the International Maritime Service, which had been set up to control the spread of infectious disease from country to country, and had built up an effective service for protection against the introduction of such diseases as small-pox, plague, and typhus fever. The more enlightened methods now practised, he continued, had abolished the old system of quarantine except in unusual circumstances, and the association performed a number of functions such as detecting infection among passengers and crews of incoming ships, examining aliens, inspecting imported foodstuffs and sanitary conditions of ships, and applying measures for freeing ships from rats and other vermin. In a paper on "Insect Pests on Ships," Dr. William C.

Gunn of the Public Health Department, Glasgow, said that infested living quarters of the crews might be regarded as slums, and should be inspected with the same care as houses on land. Fumigation by sulphur dioxide or hydrocyanic acid would kill bed-bugs and other insects, but persistent cleanliness alone would eradicate such pests.

Provision for Mental Defectives in Scotland

Arrangements for the institutional accommodation of mental defectives in Scotland were transferred to county councils and town councils of large burghs by the Mental Deficiency and Lunacy (Scotland) Act of 1914. In consequence of the war, however, the General Board of Control allowed these provisions to remain in abeyance, and decided that for a time the institutions at Larbert and Baldownie should be regarded as national institutions receiving cases without preference from all over Scotland. The Board of Control has now decided that every local authority shall be required to comply strictly with the statute, either by establishing institutions in co-operation with other local authorities or by contracting with the managers of existing certified institutions. The chief public assistance officer for Stirlingshire, at a meeting of the Public Health Committee of that county, reported that an agreement had been entered into with the National Institution at Larbert and the Stirling District Asylum for the maintenance of 150 juvenile defectives. He said that there was in practice a serious difficulty in the case of low-grade defectives because under the agreement only 10 per cent. of the accommodation was reserved for such patients, and serious administrative difficulties arose in regard to the hopeless and helpless low-grade defectives whose parents, even if willing, were quite unable to care for them. At the present moment there were actually twenty low-grade defectives in the county waiting for admission to Larbert asylum. Dr. E. N. Reid, medical officer of health, said that there was a serious lack of accommodation for defectives who required constant supervision. It was resolved to request the Board of Control that an increase of the quota for low-grade defectives in institutions should be made.

The Late Dr. Adler

As recorded in last week's *Journal* Professor Alfred Adler, who had been delivering a course of lectures on psychology at Aberdeen University, died suddenly while walking in Union Street of that city on May 28. At the time of his death he had still one lecture of his course to deliver in Aberdeen, after which he intended to give similar courses in various other cities of Great Britain. He was assisted in his work by his daughter, Dr. Alexandra Adler of Harvard University, who is to deliver some of the courses which her father had arranged to give. The memorial service at the crematorium, Warriston Road, Edinburgh, was attended by various psychologists belonging to this country and the Continent.

A. Sézary and A. Horowitz (*Bull Soc. Franç. Derm. Syph.*, December, 1936, p. 1761) report on thirty-nine cases of lichen planus treated with stovarsol. The drug was administered for six consecutive weeks, and two tablets of 0.25 gramme each were given every morning on the first four days of each week. Of the thirty-nine cases eleven failed to complete the treatment, twenty-five were cured, and three improved. Itching was relieved after the first week, and the rash began to fade after the third week, disappearing completely between the fourth and sixth weeks. In a few cases a second course of treatment was required, and was given after an interval of a month. The lesions of the mucous membranes were more stubborn than those of the skin. Sézary and Horowitz consider that this treatment is convenient, free from complications, and gives results as good as those obtained with any other modern method.

Correspondence

Bronchostaxis

SIR,—Before we can accept Dr. John C. Roberts's interesting case (*Journal*, May 22, p. 1069) as one which may be adequately described under this title, the after-history of this patient must be followed up for a few years. Otherwise it may lead to still further errors in diagnosis. As it is, the tendency is often to explain haemoptysis away rather than to explain it. If a facile diagnosis of bronchostaxis is to become popular then an even larger number of cases of tubercle and growth will be missed, and further research on bronchiectasis and cystic conditions of the lung will be hampered. I am not denying that the condition may exist, but many of us who have seen cases of haemoptysis of obscure origin have found that the obscurity has been removed by later developments.—I am, etc.,

London, N.W.1, June 3. F. G. CHANDLER, M.D., F.R.C.P.

Definition of "Arrested"

SIR,—It was with great pleasure that I read your remarks on the technical use of the word "arrested" in the annotation on the Midhurst Report. How often have I seen the bitterness of the disappointment when, in answer to the question "Am I arrested?" I have been obliged to answer "No." It is true that I have always been careful to explain that the word, as used medically, bore a different meaning to the common one. Often, indeed, I have been able to say that my patient's disease was not only not progressing but was now hindered by frail walls and widely spaced bars from making further ravages likely; that it was the patient's duty to make that prison daily more secure; and so on. But a final interview is not the occasion to teach new definitions, and our great ally Hope, once bewildered, takes a long time to re-establish herself. And all, maybe, because a positive spit is made once a day.

As this practice may happen to continue for half a century with no harm to the patient, our break-away from the generally accepted meaning of the word has always appeared to me to be not only cruel but also a relic of ignorance.—I am, etc.,

Over Wallop, Hants, May 30. FRANCIS JUPE.

Technique in Knee-joint Operations

SIR,—Surely my friend Mr. Eric Lloyd (*Journal*, May 15, p. 1015) provides a sufficient commentary on his technique for operations on the knee-joint when he naïvely writes: "*Stitch abscess* occasionally occurs two or three weeks after the operation, but clears up rapidly on removal or discharge of a small piece of catgut." Does Mr. Lloyd not realize that his catgut is discharged because it is septic, and that it is septic because it has been contaminated by the skin around his wound—for he seems to be reasonably careful about not handling his sutures. I must add that he is indeed lucky not to have met with disaster, for it appears from his description of the operation that the only catgut he uses is not "quite superficial," but actually through the capsule of the knee-joint.

There is more in the Lane technique than mere "knife-and-fork" operating, and I am astonished that Mr. Graham Simpson (*Journal*, May 22, p. 1088), an ex-house-surgeon of Lane's, so completely failed to grasp the signifi-

cance of the "ritual" which he was privileged to see at first hand. (I also was privileged to serve as Lane's dresser and house-surgeon.)—I am, etc.,

London, W.1, June 4. A. S. BLUNDELL BANKART.

Treatment of Hernia

SIR,—Your leading article in the *Journal* of June 5 says that "efforts have also been made of late to revive the treatment of hernia *by injections into the sac*." (My italics.) This is quite erroneous, and none of us who carry out this treatment in this or any other country claim so to do. This fundamental and widespread misconception accounts for most of the opposition in this country. The arguments against injection treatment so lavishly poured into the ears of my patients before they begin the treatment are based on false premises all starting from this erroneous assumption.

I was christened in San Francisco on the four hundredth anniversary of Christopher Columbus setting sail to discover the New World, and I derive much comfort from the knowledge that my favourite hero was called the mediaeval equivalent of a b—— fool by the wisest brains in Salamanca and Europe. He knew there was land where he was pointing though he had never seen it. I know there is land where I am pointing, and I have seen it, and so have the other members of our profession who have followed the technique I have described in this *Journal* and elsewhere. The evidence on page 1159 of your issue of June 5 is all the more gratifying because it comes from someone quite unknown to me.—I am, etc.,

London, W.1, June 5. ST. GEORGE B. DELISLE GRAY.

Intra-epidermic Vaccination

SIR,—I have read with interest Dr. E. R. Peirce's article on intra-epidermic vaccination (*Journal*, May 22, p. 1066), and the letter in your next issue by Dr. J. Pickford Marsden (May 29, p. 1139). The method practised by Dr. Peirce, however, does not materially differ from that described by Bryce in 1809, where he recommended introducing the point of a fine lancet the eighth part of an inch merely under the cuticle. Many others since then have described methods of so-called intra-epidermic vaccination by puncturing the epidermis with a lancet, chisel, or needle; but Dr. Peirce is more bold when he states in his article

"the technique is exactly similar to a Schick or a Dick test; a straight, solid, sterile needle is held almost parallel with the skin and the point is inserted gently through the drops of lymph, under and along the epithelial layer for about a sixteenth of an inch, and immediately withdrawn."

Now Dr. Peirce must be fully aware that this is not in the least like the Schick or the Dick test. I draw attention to this fact not from a critical point of view but because I have practised intradermal vaccination for some years, both in vaccinating large numbers of contacts and as a routine in hospital practice in both patients and staff, and my method *is* similar to the Schick or the Dick test. My technique is as follows:

I break off both ends of the glass tube containing the lymph, and with a 1-c.cm. all-glass syringe fitted with an ordinary hypodermic needle insert the needle into one end of the tube and suck the lymph into the syringe. I now fill the syringe to 0.25 c.cm. with sterile water. I then discard the hypodermic needle and replace it by a fine skin-test needle and proceed to vaccinate the patients by injecting intradermally a small quantity of this lymph emulsion, raising a minute weal in exactly the same manner as in the Schick or the Dick test.

The best method, as Dr. Marsden points out, is the method which admits of the least possible chance of failure. I maintain that my method, provided the lymph is active and the patient susceptible, cannot fail to give a successful vaccination.

I have not been able to get a "take" by the scarification method in any case "negative" by the intradermal injection, but I have had many cases of successful vaccination by the latter method immediately following a negative result by scarification.

This method can be applied with absolute surgical asepsis. There is little or no chance of secondary infection, which is almost always associated with the open scarification method, and which is in a large part responsible for the unsightly scar. There is a minimum of local or constitutional reactions. No dressing is necessary. The size of the pock and hence the resultant scar can be controlled by the amount injected. I find that adult patients much prefer this method of vaccination.—I am, etc.,

London, S.E.1, June 5. ROBERT G. HENDERSON.

SIR,—The differences between Dr. Marsden and me are largely due to different points of view. As a port medical officer I am concerned with small-pox contacts who will disperse at the earliest opportunity; for that reason I must employ a method of vaccination which not only gives protection to those who need it, but tells me at the earliest moment whether the person vaccinated is susceptible or not. This information is not only wanted by me, but also by the medical officers of health of the districts to which the contacts are proceeding.—I am, etc.,

Liverpool, June 7. EDWARD R. PEIRCE.

Angina Innocens

SIR,—I read with much interest the article by Dr. Geoffrey Bourne (*Journal*, April 3, p. 695) and the letter by Dr. Fitzgerald Peel (May 22, p. 1088) in your correspondence columns. I am inclined to disagree with Dr. Peel, for I consider that the use of the term "angina innocens" in explaining the malady to the patient is a particularly happy one, as it brings out the salient features of the affliction as experienced by him together with its comparative harmlessness or innocence, a vital matter on which to reassure him.

Dr. Fitzgerald Peel further says that it is rarely, if ever, necessary to give a name to the syndrome in talking to a patient. My experience has been to the contrary. I find that the intelligent patient likes to know what is the matter with him. If a doctor explains a syndrome to a patient he does so as simply as possible, and if in the end he can give it a name nothing pleases the patient better. If the doctor cannot name the disease the patient is apt to think that either the doctor has not taken him into his confidence, an all-important matter in therapeutics, or that he does not fully understand his condition, or that it is a very rare one, and such an impression is likely to hinder recovery. This applies particularly to heart disease, in which the patient's state of mind is often so important.—I am, etc.,

London, W.2, May 28. CHANDU LAL MALHOTRA.

SIR,—The clinical study of cardiac pain by Dr. Geoffrey Bourne (*Journal*, April 3, p. 695) is a welcome addition to a difficult subject. Under the term "angina innocens" he would include spasmodic, hysterical, vasomotor, or syncopal, and toxic angina. Spasmodic angina is difficult to differentiate from angina of effort, as in both types

the attacks are sometimes due to indigestion, emotion, or cold, and all that we can say is that in the absence of cardiac and vascular disease the prognosis is good. The hysterical type or pseudo-angina is not difficult to diagnose as the mental condition dominates the picture. On one occasion I saw three women suffering from angina at the same time—the mother died in the attack and one daughter had typical spasmodic angina, while the other daughter suffered from hysterical or pseudo-angina. The syncopal type, described by Nothnagel as vasomotor angina, in my experience has been marked by coldness and numbness of the limbs. The pain is as intense as that of angina of effort, but the cases are usually in women at the menopause.

It would be unfortunate if the term "angina innocens" were used without a further separation according to the clinical picture.—I am, etc.,

Beckenham, June 4. A. E. BLACKBURN.

Animal Pathology

SIR,—In the annotation at page 1165 of the *Journal* of June 5 it is stated: "We may reasonably ask ourselves whether disease in animals is being adequately studied in this country. It might have been supposed that the common diseases of our principal fauna were well known, but we may now wonder whether there are not other species, especially among wild animals and perhaps birds, whose entire pathology is an unexplored field."

I was privileged to share with the late Dr. J. G. Adami a deep interest in wild birds. Adami told me how this and his work with Metchnikoff had quickened his desire to compare human disease with disease in our domesticated and wild fauna, a desire he had found little opportunity of satisfying. He shared with the late Sir Clifford Allbutt the conviction that more knowledge of comparative pathology was required for our understanding of disease in man, but he feared that for such pioneer work there would be no security and little or no prospects. Encouraged by Adami I embarked on comparative pathology, and I have acquired sufficient experience unhesitatingly to assert: (1) that there is a considerable corpus of knowledge of disease in our domesticated horses, cattle, pigs, sheep, goats, dogs, cats, and poultry; (2) that a large amount is known of disease occurring naturally among laboratory animals; (3) that during the past ten years several workers have contributed much to our knowledge of disease among the animals farmed in Great Britain for fur (for example, silver fox, mink, marten, fitch, rabbits, and nutria); and (4) that to those familiar with the subject there is a not insignificant amount of data on disease in the wild fauna of this country. There are species of our wild fauna of whose pathology little appears to be known—for example, voles, shrews, dormice, field-mice. Charles Elton and his colleagues are to be congratulated on their pioneer work in the ecology of these small rodents. My own experience of disease in our *wild* fauna has been derived mainly from birds; however, I am not unfamiliar with some of the pathology of squirrels, fox, rabbit, hare, blue hare, and stoat; while occasional specimens of wild cat, hedgehog, and badger have been received.

I have had the temerity to mention my work not because I see clearly what to make of it all, but because it has brought me into close touch with other workers on the wild fauna. They, like myself, do not earn their living by such pursuits; this may explain why those unfamiliar with the subject regard it as "an unexplored field." If the writer of the annotation should reply that the work done and proceeding is "inadequate" to the needs of pathology I should agree with him. Some day, perhaps, those in authority will recognize that there is something after all in Adami's notions, and in the work of John Hunter, Tegetmeier, Bland-Sutton, Wilson, Frank Colyer, Pillers, Henry Gray, and many others. Some day, perhaps, finance will be made available to establish an institute of comparative pathology where disease in our domesticated and wild fauna can be studied for the service of the science of medicine.—I am, etc.,

Veterinary Research Laboratories, London, N.W.3, June 7. TOM HARE.

Intermittent Venous Occlusion

SIR,—I am much interested in Brown and Arnott's account of treatment by intermittent venous occlusion (*Journal*, May 29, p. 1106), in which the earliest date they mention is 1925. As I was treated by this method in Germany in 1917 when a prisoner of war, and during my subsequent medical course, 1919–23, I never heard any mention of this method, can any of your readers tell me if it was used in the military hospitals on our side of the line?

I was wounded and taken prisoner near Cambrai on November 30, 1917, and in three or four days arrived at Le Cateau. On December 17 my ankle was *x*-rayed, and on the 18th I was removed to a ward in another empty factory. It was the best ward in the town; there were sixty beds, four day nurses, and two night nurses, under the care of Professor "Blue-Nose" (I know no other name), who operated on my ankle forthwith and removed a metal fragment. The theatre was primitive and the anaesthetist unqualified.

Five or six hours later a nurse fitted an intermittent venous occlusion ring on my leg above the knee. She told me it would remain on for seventy-two hours. All the fifteen beds in my row were similarly fitted. A gaspipe ran along the wall at the head of the beds, and a T-piece with a tap came off at each one. The apparatus working this was in the middle of the row, and so far as I can remember it consisted of a couple of oxygen cylinders and a larger cylinder, measuring four or five feet by two feet in diameter, with a pressure gauge and a clock. I thought it worked by the boiling of liquid oxygen. From each T-piece came a thick rubber tube attached to a thin rubber ring, 1½ in. wide, enclosed in a stout canvas case. The period was sixty seconds with fifteen seconds complete relaxation and fifteen seconds maximum pressure.

All wounds were septic in every ward I was in owing, doubtless, to the lack of staff and materials. This apparatus was applied to all the patients who were with me, all picked cases—I was there because I was an officer and the only prisoner who spoke German—and I understood it was to help the patient to overcome sepsis. I spoke of this apparatus during my subsequent hospital training to various members of the staff, but no one seemed to have heard of it.—I am, etc.,

G. D. SUMMERS, M.R.C.S., L.R.C.P.,
Late Lieutenant 7th Battalion The Norfolk Regiment, B.E.F., France.

Lincoln, May 29.

Orthopaedic Conditions

SIR,—I feel that a reply to your unfavourable review of my book on *Elements of Orthopaedic Surgery* is justifiable. It seems that your reviewer has read it from the point of view of the specialist, for whom the book was not, of course, intended, and has little appreciation of the real needs of the auxiliary workers in orthopaedics,

for whom the book was written. Thus he maintains that diagnosis should have been given a pre-eminent position. The truth about the diagnosis of orthopaedic conditions is that in the majority deformity or disability is obvious even to the layman, while in the minority the diagnosis of the cause of pain or other symptoms is so difficult as to need special knowledge and often special means of investigation. There is accordingly no value in an elementary book giving more than the salient points of diagnosis. Most important is the need to emphasize the risks of delay in *determining* the diagnosis and in beginning treatment, and this I was careful to do.

The examples your reviewer gives are unfortunate. As one who did the first work on the intervertebral disks in this country I might have been excused if I had taken more than one sentence to discuss adolescent kyphosis; but I refrained from doing so because of its relative unimportance practically. If your reviewer knows of any effective treatment for it at an early or late stage, I and other orthopaedic surgeons would be glad to know it also. Again, he complains that the reader is not told how to distinguish tuberculous disease from non-specific arthritis of childhood. He must be well aware that this is a specialized matter, and even with special knowledge and laboratory investigations may be very difficult. What need is there to discuss such differential diagnosis in an elementary textbook or to go into fine points of *x*-ray appearances, as your reviewer would have had me do?

I agree with the reviewer in the importance of the part played by the general practitioner and nurses in the early recognition and the successful treatment of an orthopaedic case. Every orthopaedic surgeon realizes this, and that the success of his work is largely dependent on the well-organized and understanding co-operation of these and others who assist him or see to the welfare of the patient. It was precisely for this reason and because there was no recent suitable book to which they could turn for information that this book was written. It may have failed, perhaps, to give all the information these persons need; but I deny that it is lacking in the ways your review indicates.—I am, etc.,

Bournemouth, May 31. N. ROSS SMITH.

Air Raid Precautions

SIR,—I find myself very much in sympathy with the opinions expressed by Dr. Leys and Dr. Macdonald Ladell (May 22, p. 1091, and June 5, p. 1179) on this subject. Has not the time come for a more collective expression of opinion by the medical profession, or at least for more serious consideration and discussion of the duties in connexion with air raid protection for which doctors throughout the country are now being called upon to prepare themselves and others? The instruction which is being given is mainly in connexion with gas, while the real danger, it is well known, would be from high explosive and incendiary bombs or a combination of all three methods. Adequate protection against all of these in a crowded city is generally regarded as impossible, and attack with high explosive and incendiary bombs would, in fact, largely neutralize the efficacy of all the methods of protection against gas except, perhaps, the wearing of a mask. Under military discipline it is possible to train men in the use of gas-masks, but the training of the whole civil population is out of the question, and, in any case, it would be a poor comfort to parents to learn the use of masks when these cannot be provided for or worn by small children.

The present anti-gas drills are deluding the public into a belief that useful steps are being taken for their protection, and at the same time, as Dr. Macdonald Ladell points out, are fostering the war mentality and the idea that war in the near future is probable or inevitable. Is it proper for doctors to subscribe to a prophylactic measure which is so inadequate and deceptive, or to support educational procedures of which the psychological consequences are so undesirable?

Although I hold my own views, the columns of the *British Medical Journal* are not, perhaps, the place to discuss whether an intensification of pacifist endeavour or rearmament in order to "do likewise" to the enemy in the event of an attack is the better form of prophylaxis. These are matters for all of us to consider constantly. If, however, war comes there will remain one indisputable duty for doctors, and that will be the task of supplying as efficient an ambulance and hospital service as possible for the stricken multitudes. No provision for such services seems to be contemplated at present either by the Government or by our profession. The organization of such services would surely be more consistent with the true function of our profession than playing at gas attacks and delivering lectures to lay audiences with an assumption of authority which neither experience nor conscience can justify.—I am, etc.,

Cambridge, June 7. JOHN A. RYLE.

*** The task of supplying efficient hospital services is being carefully considered by the Committee for Imperial Defence in co-operation with the British Medical Association.—ED. *B.M.J.*

SIR,—I think the letter under the above heading, by Dr. Duncan Leys (*Journal*, May 22, p. 1091), admirable, and I heartily agree that the present precautions are hopelessly inadequate. We, as a profession, are being asked to participate in defence measures, but as far as I know no opportunity has been given to us to express any opinion on the efficacy, or otherwise, of those schemes in which we are to play such an important part. Little opportunity is given during official lectures for discussion and constructive criticism. Scientific and controlled experiments conducted at Cambridge cast grave doubts on the whole Government scheme. These have been passed over by the Government with the insinuation that they are the work of Communists. The medical profession is moving rapidly towards the preventive aspects of medicine, and I suggest that in this respect it has a right and a duty to see that if war does come the population has knowledge of what to expect, and also knowledge that everything possible has been done to minimize the senseless destruction of human life. To date an impartial observer must agree that our weapons of offence have received far more attention than those of defence.—I am, etc.,

London, W.5, June 1. H. JOULES.

SIR,—Dr. Ladell (June 5, p. 1179) states that he refuses to take part in air raid precautions. I take it he would not withhold any active treatment of, say, gas cases. If so, he says in effect, "I will do all I can to treat gas cases, but I refuse to give any precautionary advice as to respirator drill"—a somewhat illogical statement.—I am, etc.,

W. A. BELLAMY, Lieutenant R.A.M.C.(T.)

London, S.E.26, June 5.

Prevention of Constipation

SIR,—May I emphasize the importance of the psychological factor in the treatment of constipation by referring to the way I have attempted to deal with the problem at a certain L.C.C. mental hospital.

A distressingly large proportion of the public have been hypnotized by a barrage of advertisements, and now firmly believe that: (1) they are constipated; (2) this does them harm; (3) it requires regular treatment by salts, pills, chocolate laxatives, or patent what-nots to restore their normal bowel function. Patients in mental hospitals are in this respect like the rest of the public. They often state that they are constipated—usually without adequate proof. They insist on being given a regular dose of white mixture at least once a week and often more frequently. If this request is granted by the nurse in charge (ordinary aperients in mental hospitals being given at the discretion of the nurse and signed for by the doctor *after* the event) a habit is formed and the patient regards his regular dose as a necessity. If deprived of it he may develop hypochondriacal ideas and believe his bowels are becoming blocked.

I have in my own hospital work found a satisfactory compromise. All the patients who ask for their regular "dose of white" are given it as usual, but the prescription, originally mag. sulph. 60 grains or more, with mag. carb. levis, 10 grains, and peppermint water, has been secretly and gradually reduced until there is now no magnesium sulphate in the mixture at all. The magnesium carbonate is retained so that the mixture looks exactly the same. No patient has yet remarked on the reduced efficiency of the present medicine, nor has any nurse. As neither know of the change, it would seem that the present mixture works chiefly by suggestion.

The routine administration of aperients is, in my opinion, strongly to be deprecated. If the constipation is of significance it should be investigated, the cause found, and if possible treated. May not organic alimentary trouble be overlooked in its earlier stages if the patient is given aperients at the discretion of the nurse? Alternatively, if the constipation is without significance or illusory, are we considering the best interests of the patient if we tacitly allow him to be dosed with aperients until he develops a habit and possibly a real constipation as a result? I suggest that the time has come to combat the mass suggestion of the aperient advertisers and manufacturers. It has been said that constipation is practically unknown among savage tribes—or among the inhabitants of this country in the Middle Ages. Is the reason entirely one of diet or mode of life? May it not be that these people had not yet heard of constipation? When they were ill they took a purge, but when they were well did they think of taking anything to preserve their "inner cleanliness"?

The public has been given an irrational fear of constipation by the aperient-monger. It is our duty to allay that fear, even if it results in reducing the profits of the firms involved. So as not to break the spell which is at present working the bowels of the 500 male patients in my wards, may I sign myself—anonymously—

June 1. "MAG. SULPH."

Maternity Services

SIR,—Dr. Elam's letter in the *Journal* of May 29 (p. 1136) is interesting, but does not take us much further towards solving the problems before us. The desirability of one practitioner being "responsible for each patient before, during, and after her confinement" is recognized by everyone. Where "failed forceps" is due to their too early application all would agree that to have soothed the patient, either as Dr. Elam suggests or with nembutal or hyoscine, would have been sound treatment.

Obstetric operations in unsuitable homes are certainly undesirable, but before we rush in with sweeping plans for the conduct of our brother practitioners' practices, should we not inquire how often each of these factors occurs by itself and how often are both present in any case? Are not about 95 per cent. of confinements obstetrically normal? And if ante-natal work is efficient, will it not result in the abnormal case being detected and if necessary referred to hospital? Then again, are unsuitable homes so very common? The nurses from two London hospitals, attending poor patients in their own homes, can show a maternal mortality rate of only 1 per 1,000.

A maternity scheme is bound to be evolved in each area, as Dr. Elam suggests, and until we see how much help this is going to provide for the general practitioner who is interested in this work it would be best, I submit, not to come to any hasty conclusions regarding the future of domiciliary midwifery.—I am, etc.,

London, W.10, May 31. HUGH SUTHERLAND.

Medico-Legal

HERMAPHRODITISM

Some Medico-legal Conundrums

Hermaphrodites have always excited interest, but recent developments in sexual endocrinology have given these rare and curious persons much greater importance. Mr. Harold Chapple, in his article in the *Journal* of April 17, considers that the value of the ovarian secretions is more superficial than is usually supposed in determining the type of an individual. Other authorities have, however, expressed strong disagreement with him in the correspondence columns of the *Journal*, and minute investigations on a series of hermaphrodites might do great service in defining more precisely the role of the gonads in producing a sexual type. A case not unlike Mr. Chapple's was described several years ago in which a supposed female person appeared to have neither uterus nor ovaries but two buried testicles.

Dr. L. Ombrédanne[1] describes a "gynander" who set him a few legal conundrums. (As by French law this patient is a male it will be convenient to use the male pronoun.) At 22 years he has a hairless body except for the pubic region, breasts like a girl, a more or less female pelvis, but large hands and feet. He has a small penile organ in a condition which would pass for a male hypospadias, but which was not remedied by an earlier operation. On the right there was, before intervention, an ample pocket containing a palpable gland the shape of an almond and surrounded by an organ which felt like an epididymis with a large head. On the left there is an empty scrotal fold. The lower aspect of the penis and the perineum are covered with scrotal skin, and this conceals, in front of the anus, a small orifice lined with mucosa and large enough to admit a sound. This is the outlet of the urinary canal and of a menstrual flow. The patient has behaved sexually like a man, and since the age of 16 has had connexion with several women: he experiences erection, but no ejaculation, and does not obtain complete satisfaction. His voice, however, is feminine, and since 13 years he has menstruated regularly every twenty-eight days for six days at a time. At birth the doctor had no doubt that he was a male, and he was registered as

[1] *Presse méd.*, March 3, 1937, p, 329.

one ; at 14 the gland which has been described descended into the right scrotal cavity. At 20 he was declared unfit for military service, and at 21, when a surgeon suggested removing his breasts, he came to Professor Lenormant for advice. An exploratory laparotomy revealed a slightly small uterus and a large polycystic left ovary complete with salpinx. On the right the adnexae disappeared into the inguinal canal ; the salpinx and the upper margin of the broad ligament were pulled out into a string and were housed in a right inguinal hernia. The next problem was to establish the patient's legal sex. This is important in France to a degree unintelligible in this country. To change the sexual status of a French person it is necessary for the parents, if the person is a minor, or the person himself if he is of age, to move the court to examine into the circumstances ; judgement is given on the evidence. In the present case the patient is legally a male and wishes to remain one. Although he has a uterus, ovaries, and periods, he has no patent vagina ; and Dr. Ombrédanne considers there is little reason why he should not remain a male. On the other hand, he was intending to marry a girl with whom he had been living for two years, and she could undoubtedly in France have obtained a decree of nullity on the ground of the husband's real or "abdominal" sex—if she could get over the obstacle of the French legal prohibition which forbids the surgeon who attended the husband to reveal any facts concerning his patient. The author decided on balance that it would be better to facilitate the patient's life as a male, according to his wish. In this country the only objection to this course would probably be that the patient might marry, and as he is sufficiently competent sexually to penetrate the vagina his wife would find it very difficult to obtain a decree of nullity if she wanted one.

A somewhat similar case is reported from Nancy by Drs. A. Binet and Demange,[1] but that person had more obviously male external organs and a well-developed pair of female breasts, also a rudimentary vagina in which he was in the habit of concealing stolen jewellery. He was a Jew of 37 and had been circumcised. The authors did not investigate his internal organs and so the story is very incomplete.

Surgical Intervention

Our comparative lack of interest in hermaphroditism, or gynandry, in this country may be due to its comparative insignificance in English law. In countries which need to maintain large conscript armies every male person is a national asset of great importance, to be carefully watched over from birth. In France, for instance, the sex is registered at birth as in this country, but the entry in the register seems to have a much more conclusive legal effect, and if there is any doubt about the sex the register can only be amended by the order of a special tribunal. The register seems to decide questions of inheritance and others in which sex is important. There is also a specific legal prohibition against castrating a male person, and Dr. Ombrédanne refers to this as though a French surgeon ran a serious risk if in a case of doubtful sexuality he decided to remove a pair of buried testicles and let the patient live as a female. In this country the somewhat theoretical legal prohibition of castration, which is always quoted in discussions on sterilization, would never be invoked against a surgeon who removed testicles on good medical grounds. Mr. Chapple ran no risk at all in removing the testicle—assuming that it was a testicle, which does not seem to be universally admitted—from his attractive patient. Similarly, we hardly ever hear of hermaphrodites in questions of inheritance, probably because sex only matters in connexion with entailed property, which is a family affair. The rules for the division of the estate of a man who does not leave a will make no distinction of sex.

[1] *Rev. méd. Nancy*, March 15, 1937, p. 267.

Criminological Aspects

One other branch of law in which hermaphroditism might theoretically be significant is the criminal law against indecent conduct. The law prohibits sodomy and punishes it very heavily ; a lesser but still grave offence is that of gross indecency between male persons. There is no legal prohibition against lesbianism. It is impossible, however, to imagine a court convicting a man of gross indecency if his partner's sex were in any substantial doubt. Mr. Chapple does not seem to have suggested, in his closing remarks about the law, that his patient would be regarded legally as a male person. The most likely circumstance in which there could be any dispute about the sex of a partner would be if the accused man pleaded in his defence that the partner was not a male and called expert medical evidence.

Obituary

CHARLES SHORNEY WEBB, M.S., F.R.C.S.

On June 1 Charles H. Shorney Webb died in the hospital where he received his medical education and where for a dozen years he had been a brilliant member of the honorary surgical staff. Webb had a fine academic career, gaining honours and distinctions not only in the Middlesex Hospital Medical School but also in the University of London ; he was only the fourth "Middlesex" student to secure the M.S. degree, and obtained marks qualifying for the gold medal on that occasion.

During his tenure of a surgical registrarship at Middlesex Hospital the "wanderlust" seized him, and he served in the Balkan Campaign in 1912 ; in 1914 the first day of the great war saw him eager alike for adventure and to place his talents at the disposal of the British wounded. Webb landed in the original Expeditionary Force with the Fourth Casualty Clearing Station, a unit with which he remained until 1918, when he was appointed to the charge of a surgical division of the 24th General Hospital at Étaples. At a time when opinion was still divided as to the desirability of exploration for gunshot wounds of the abdomen he was one of the first to operate for this type of injury. To Owen Richards, of course, belongs the credit of demonstrating and of urging the need of surgery in these particular wounds of warfare, but the first considerable communication dealing with the subject was written by Webb and Milligan.

Elected *in absentia* to the honorary staff of his old hospital during the war years, he did not assume his duties until after the armistice. With a far greater operative experience than usually belongs to a newly appointed assistant surgeon, Webb proved himself also a fine teacher, acquiring a popularity with the students akin to that which he had enjoyed among his fellow workers in his early days and in France ; furthermore, his surgical advice and services were eagerly sought by his colleagues and their families.

We read in Euripides how those whom the gods wish to destroy they first drive mad. Thus it seemed with Webb: his camaraderie and his genius for friendship became a vengeful Alastor ; diligence languished, and he slipped suddenly from our midst. Nevertheless, when all seemed lost, when all was plunged in "leaden-eyed despair," pluck still burned within him, and surprisingly, unexpectedly, a veritable Samson Agonistes, he staged a great come-back. The London County Council sponsored this return ; he lived long enough to justify the con-

fidence again reposed in him, and became a valued operating surgeon to the Middlesex County Council. Time was indeed granted him to earn again the admiration of his erstwhile colleagues, but the events of his life might well be the theme of an Aeschylean tragedy: "the mighty Fury from her dark depth of counsel requites to the uttermost"; his days were cut short by an infective endocarditis, which killed with inexorable certainty.

Webb's gifts were many. He was a fine linguist; a lover of music, he played piano and organ; he loved churches and old ecclesiastical architecture; and the memory may still linger in the minds of his war comrades of the strains of some church organ, by strange caprice intact, pealing forth from a ruined church without roof, with walls wide open to the air, an anthem perchance strange to the rude ears of that time, and within a debonair surgeon playing intently and with an exquisite skill. His surgery demands this tribute from an old chief and former colleague, as does also the courage of the man. And yet how difficult it is to stifle the thought of what might have been.

G. G.-T.

CHARLES IRVINE MILNE, M.D.

Physician, North Staffordshire Royal Infirmary, Stoke-on-Trent

The death of Dr. Charles I. Milne on May 29 at the age of 53 has come as a profound shock to the entire population of Stoke-on-Trent, where he was esteemed and beloved alike by patients and colleagues. Son of the late Dr. Irvine Milne of Shipdham, Norfolk, he was educated at George Watson's College, Edinburgh, and Edinburgh University, where he graduated M.B., B.Ch. in 1907, and later obtained the M.D. degree, after serving as clinical assistant in the University medical wards.

Dr. Milne came to the "Potteries" as a young man, and served as house-physician and later as house-surgeon at the North Staffordshire Royal Infirmary. He relinquished these appointments to take up practice in this district, where he worked with untiring energy, giving himself wholeheartedly to the service of his patients. During the war he served with distinction in India, attaining the rank of captain R.A.M.C. He afterwards returned to his practice and was appointed honorary assistant physician at the Infirmary in 1927 and became honorary physician in 1932. At the time of his death Dr. Milne was chairman of the Medical Board. A regular attendant in the wards and an ever-present member of many committees he lived to be highly respected and honoured by all who had the pleasure to work with him. For the past twelve years he acted as honorary secretary to the North Staffs Medical Society, and this society owes a deep debt of gratitude for his courtesy, tact, and capacity for hard work at all times. He joined the British Medical Association in 1911, and was deputy representative for the Annual Meeting of 1930.

Of a rather retiring disposition and unassuming character it took some time before one knew Charlie Milne really well, but then it was evident that here was a man genuine to the core, whose whole aim and object in life was to play his part manfully and well and give of his best to those depending upon him. He had not an enemy in the world, and it has been very truthfully said of him that nobody ever heard him utter an unkind word of any one. Heartfelt sympathy is extended to his widow and his two young sons.

R. A. K.

A familiar figure at international medical meetings, Professor EDVARD LAURITZ EHLERS will be missed by a wide circle of friends. His death occurred on May 6 in his seventy-fifth year. He was born in 1863 and began his studies in Copenhagen in 1880. He studied dermatology in Germany, Austria, and France, and in Denmark he was in charge of the Welander Homes for children suffering from congenital syphilis. His studies in leprosy took him to Iceland, the Balkans, the West Indies and many other parts of the world, and he was the organizer and secretary-general of the First International Leprosy Conference, held in Berlin in 1897. He was editor-in-chief of the *International Archives of Leprosy* and president of both the Danish and the International Union against Venereal Disease. The honours bestowed on him abroad by medical societies, universities and Governments were many, and included membership of the French Academy of Medicine. One of his most valuable contributions to medicine was his ambulant treatment of scabies. At international meetings Professor Ehlers was thoroughly at his ease thanks to his liguistic gifts and happy knack of mixing easily with all sorts and conditions of men. He had a genius for making the complete strangers he met at medical congresses instinctively feel that they were at least his equals—a remarkable gift in a man with few equals in his own sphere.

We regret to announce the death on June 4 of Dr. WILLIAM FRYER HARVEY at the age of 52. From Bootham School, York, he went to Balliol College, Oxford, taking the M.A. in 1910, and the M.B., B.Ch. in 1917 after further medical study at Leeds. He had joined the Quaker training camp at Jordans in August, 1914, and went with the first detachment of the Friends Ambulance Unit to Flanders. On graduating in medicine he took a commission as temporary surgeon lieutenant R.N., and two days before the armistice was awarded the Albert medal for saving life at sea. This act of bravery was the risking of his life to operate on an engineer trapped in the wrecked and flooding engine room of a destroyer. Dr. Harvey was dragged out unconscious from the effect of oil fumes and never fully recovered from the strain. He acted for a time as Warden of the Fircroft Working Men's College at Selly Oak, Birmingham, but had to abandon this owing to a breakdown of health. For some years he lived at Weybridge and devoted himself to literary work; in 1935 he moved to Letchworth.

The death of Dr. A. CHARLES E. GRAY was reported in the *Journal* of May 22. "L. A. H." writes: To-day there is a tendency to belittle the work of all voluntary social agencies, and to prophesy their ultimate replacement by State control; but it must not be forgotten that at the end of last century there was a band of voluntary social workers keenly interested in promoting schemes for the improvement of public health conditions. One of these was the late Dr. Charles Gray. In 1894 Dr. Gray became a member of the Medical Advisory Subcommittee of the Charity Organization Society, a connexion which lasted for over thirty years, during most of which time he acted as chairman. With the late Sir Charles Lock and the late Colonel Montefiore he was responsible for placing the training of hospital almoners on a scientific basis, and when at the end of 1907 the Training Council, which later became the Institute of Hospital Almoners, was formed Dr. Gray was chairman from that date until his retirement in 1931. Before the Maternity and Child Welfare Act of 1918 came into force most if not all child welfare centres were in the hands of voluntary workers. Dr. Gray was honorary medical officer to the Stepney Centre from its inception until the control was handed over to the medical officer of health in Stepney. When the first voluntary tuberculosis dispensaries in London were instituted by Herbert Woollcome, Lady Jones, and Miss McGaw, Dr. Gray was a prominent member of the Stepney Dispensary, which, completely fitted up, was afterwards presented by Lady Jones to the local authority.

We much regret to announce the death of Lady CAMPBELL, L.R.C.P. & S.Ed., on May 20, at her residence, "Culloden," Craigavad, Co. Down. Widow of a famous Belfast surgeon, the late Sir John Campbell, she was known for her good works and her interest in everything pertaining to the medical profession in Belfast. Emily Frances Campbell was a native of Co. Kerry, and assisted her first husband, Dr. Fitzsimons, in his missionary work abroad for some years. After his death she returned to Belfast, where she studied medicine, obtaining her medical qualifications in Edinburgh in 1896. She practised her profession in the Antrim Road district for three years before becoming the wife of Mr. John (later Sir John) Campbell, who was rapidly making a name for himself as a gynaecological surgeon. All her life she was devoted to his interests, often assisted him by giving anaesthetics at his operations, identifying herself with his work, and promoting the best ideals in everything she touched. Hers was a quiet personality, always tender and compassionate, dogs and gardening being her hobbies. Lady Campbell is survived by her two sons, the elder of whom is a graduate in agriculture of Cambridge University; the younger, William Stewart, has had a brilliant career at the Queen's University of Belfast, and has recently become a Fellow of the Royal College of Surgeons of England. With these two the deep sympathy of the profession goes out in their bereavement.

Dr. WILLIAM EMERSON LEE, who died at a nursing home in London on May 26, was born at Nottingham in December, 1875, and from Repton and Trinity College, Cambridge, went to St. Bartholomew's Hospital. He took the M.R.C.S. and L.R.C.P. in 1904 and the M.A., B.Ch. Cantab. in 1907, and proceeded M.D. in 1910. Before settling in practice at Worksop Dr. Emerson Lee had been senior resident medical officer at the Metropolitan Hospital, house-surgeon at Addenbrooke's Hospital, Cambridge, and assistant medical officer at the Dorset County Asylum. During the war he served with the rank of captain R.A.M.C.(T.). He published two papers in the *Quarterly Journal of Experimental Physiology*, one on the action of tobacco with reference to arterial pressure and degeneration, and the other, with Professor W. E. Dixon, on tolerance to nicotine.

Dr. JOHN ROUND, who died after a long illness on May 18, was born at Dudley, Worcestershire, in 1862, and studied medicine at the Birmingham Medical School, becoming L.R.C.P. & S.Ed. and L.R.F.P.S.Glas. in 1889. He later obtained the D.Sc. of the Inter-Collegiate University, Chicago. After serving as assistant physician to the Plymouth Public Dispensary Dr. Round settled in general practice in South London, and was for some years honorary physician to the Battersea General Hospital. He joined the British Medical Association in 1890, and had been chairman of the Greenwich and Deptford Division. Dr. Round was a man of wide interests, and contributed from time to time to medical journals. His death in hospital, following an operation, took place seven months after his retirement from active practice.

Universities and Colleges

UNIVERSITY OF LONDON

The following candidates have been approved at the examination indicated:

THIRD M.B., B.S.—*P. A. S. Aldis, ‡†M. S. Campbell, *†‡‖H. W. C. Fuller (University Medal), *‡A. J. Hinot, *‡H. N. G. Hudson, *‡J. Ketcher, *†C. J. Longland, *¶Elizabeth J. Rooke, *†F. H. Scadding, *§¶R. C. Wofinden, H. I. C. Balfour, J. D. Ball, Marjorie Bolton, E. R. Bowes, M. A. Carpenter, J. E. Cates, Norah H. C. Clarke, May D. C. Clifford, P. R. K. Coe, J. C. Colbeck, W. J. C. Crisp, J. A. Currie, J. B. Cuthbert, Mary D. Daley, H. J. Davies, G. S. W. de Saram, W. R. S. Doll, I. A. Donaldson, A. C. Dornhorst, G. H. H. Dunkerton, J. A. Dunlop, Katherine W. Dunn-Pattison, H. J. Eastes, Gwendoline M. Edwards, J. E. Elliott, J. G. Fife, Audrey I. Freeth, Dorothy M. Gladwell, C. H. Gray, M. Hamilton, D. R. Hanbury, J. C. Harland, G. A. Hart, Sylvia A. M. Herford, J. R. Hill, J. D. N. Hill, T. H. Hills, J. Horowitz, T. E. Howell, Sybil M. Humphreys, B. W. Hunt, I. Hywel Davies, T. P. N. Jenkins, Mary Kane, J. W. M. Leslie, Mabel E. Linscott, O. Lloyd, D. de la C. MacCarthy, T. O. McKane, K. J. Mann, Queenie I. E. May, A. E. Miller, A. G. Moore, Margaret J. Moore, M. A. H. Munshi, N. W. N. Murray, Winifred F. G. Murray, B. B. G. Nehaul, J. H. L. Newnham, H. A. Pearce, Faith C. Poles, M. C. T. Reilly, Elizabeth H. Rosenberg, H. L. M. Roualle, L. J. Sandell, R. S. F. Schilling, A. Shapiro, C. P. Smith, Eveline A. Smith, R. Y. Stevenson, Ethel M. Strong, R. W. Taylor, C. E. Thomas, N. Thomas, P. H. Tooley, H. A. Tuck, R. G. Tuke, Sarah C. B. Walker, A. J. N. Warrack, Lilian H. Walter, Joan M. Wenn, E. D. H. Williams, P. C. F. Wingate, Rowena Woolf, S.S.Yudkin. *Group I:* Laura M. Bates, J. Bleakley, Katharine M. H. Branson, F. J. Brice, K. C. Brown, Margaret M. Burton, Dorothy R. Clarke, A. L. Collins, G. H. Darke, Cecile R. Doniger, Gertrude L. E. Dudderidge, Mary N. Fawcett, W. B. Foster, J. P. Fox, W. A. J. Fox, Audrey U. Fraser, Rachel Goldenberg, J. H. Goonewardene, D. Graham Brown, A. G. Hemsley, G. Herbert, K. R. Hill, J. Hoadley, J. G. Humble, H. Jackson, S. J. Johnson, A. Jordan, H. Josephs, Gladys E. Keith, A. R. R. Kent. B. S. Kent, G. M. Kerr, Iris M. Lamey, J. D. Laycock, O. C. Levine, B. G. A. Lilwall, A. E. Loden, M. Lubran, W. H. McDonald, H. A. C. Mason, D. W. Moynagh, Mary G. Murphy, J. H. F. Norbury, M. G. O'Flynn, A. C. D. Parsons, Edith A. S. Parry-Evans, V. G. Peckar, W. M. Philip, R. E. A. Price, Nancy E. G. Richardson, A. C. Ricks, G. C. Tresidder, P. W. Vilain, R. R. Willcox, M. R. Woods. *Group II:* Mary J. Allardice, D. R. Ashton, D. W. Beynon, T. K. Bradford, J. D. Bradley-Watson, D. W. J. Cohen, M. Curwen, P. H. Denton, J. E. Ennis, E. H. Hambly, D. H. Harrison, R. A. Jones, E. R. Mountjoy, N. Ponnampalam, S. H. Raza, Mary C. Rowe, C. P. Sames, J. A. Smart, E. R. Smith, G. R. Steed, G. A. van Someren, G. R. Waterman.

* With honours. † Distinguished in Medicine. ‡ Distinguished in Pathology. § Distinguished in Forensic Medicine and Hygiene. ‖ Distinguished in Surgery. ¶ Distinguished in Obstetrics and Gynaecology.

UNIVERSITY OF OXFORD

Sir Farquhar Buzzard, Bt., Regius Professor of Medicine, has been elected to the Hebdomadal Council to hold office until 1943.

Arthur Duncan Gardner, D.M., Fellow of University College, has been appointed Reader in Bacteriology from October 1, 1937.

A. H. T. Robb-Smith, M.D.Lond., has been appointed as from September 1 Assistant Director of Pathology under Lord Nuffield's benefaction.

UNIVERSITY OF CAMBRIDGE

The Appointments Committee of the Faculty of Biology "B" will shortly proceed to appoint four university demonstrators in anatomy and a university demonstrator in physiology. Particulars of these appointments may be obtained from Dr. F. J. W. Roughton, Physiological Laboratory, Cambridge, to whom applications should be addressed by June 18.

Candidates for the Michael Foster studentship in physiology should send in their applications, with a statement of the course of research they propose to undertake, to Professor Barcroft, Physiological Laboratory, Cambridge, by July 7.

SOCIETY OF APOTHECARIES OF LONDON

The following candidates have passed in the subjects indicated:

SURGERY.—J. R. Audy, A. W. Box, J. W. P. Morgan, W. G. Zorab.

MEDICINE.—A. Bagon, P. A. Gardiner, E. de C. Kite, B. A. R. Pitt, R. H. S. Thompson.

FORENSIC MEDICINE.—A. Bagon, P. A. Gardiner, E. de C. Kite, B. A. R. Pitt, R. H. S. Thompson.

MIDWIFERY.—F. Bastawros, A. W. Box, J. D. B. Perkins, G. L. Young, W. E. Young.

The diploma of the Society has been granted to A. Bagon, P. A. Gardiner, B. A. R. Pitt, R. H. S. Thompson, and W. G. Zorab.

The following candidates have been approved at the examination indicated:

MASTERY OF MIDWIFERY.—Isobel McArthur Brown, M.B., Ch.B., D.P.H., Henry Canwarden, M.R.C.S., L.R.C.P., Mohamed Saleh Bin Abdul Hamid, M.R.C.S., L.R.C.P., D.P.H., Bessie Hatherley, M.B., Ch.B., Stanley Henderson, M.B., Ch.B., Isabella Agnes Milne, M.B., Ch.B., Margaret Catherine O'Brien, M.B., Ch.B., D.P.H., Arnold Abraham Weinbrenn, M.D.

Medical Notes in Parliament

On June 8 in the House of Lords the Widows', Orphans', and Old Age Contributory Pensions (Voluntary Contributors) Bill passed through committee. The second reading of the Marriage Bill in the House of Lords is set down for June 17. Lord Kinnaird is in charge of the measure. The committee stage of the Methylated Spirits (Scotland) Bill in this House is also down for June 17. Lord Kinnaird sponsors this Bill.

The House of Commons this week discussed the estimates for the Ministry of Health and for the Ministry of Agriculture and Fisheries and began the committee stage of the Finance Bill. Introducing the Health Estimates Sir Kingsley Wood spoke of the progress in influenza research and the incidence of other diseases. He drew attention to the fall in the birth rate, and announced that inquiries were in progress into the trend of population. Further information would be secured about fertility. He discussed housing, nutrition, and maternity and child welfare services.

A new initiative for regulation of the trade in proprietary medicines may soon begin. There was a preliminary discussion at the House of Commons this week. The Drainage of Trade Premises Bill passed through a Standing Committee of the House of Commons with amendments on June 8. The committee stage of the Trade Marks Amendment Bill is set down for Standing Committee on June 15. Three days next week in the House of Commons will probably be allotted to the report stage of the Factories Bill.

Health in the Colonies

The Vote for the Colonial Office was debated in the House of Commons on June 2. Mr. ORMESBY-GORE said he wished immediately to explain his position on the mui-tsai question. He awaited the considered comments of the Governors of Hong Kong and of the Straits Settlements and of their Executive Councils on both the majority and the minority reports on this question. Both in China and in the settled Chinese population of British Malaya and Hong Kong there was a growing public opinion of a more Western character which viewed these old social customs of China as things which ought to be done away with or to be changed.

Mr. WILLIAM LUNN moved the reduction of the vote and discussed the possibility of abolishing the mui-tsai system. He also spoke on problems in the African colonies. He drew attention to a report by a committee instituted by the Governor of Nyasaland to inquire into migrant labour. This report said that 120,000 adult natives, a quarter of the adult male population of Nyasaland, were living away from their homes, and not more than 5 per cent. had their women with them. In the West Indies problems of education and health called for attention. In Barbados malaria and typhoid were common, food was poor and lacking in nutritive value, sanitation was bad, people lived in overcrowded conditions, wages were low, and unemployment was rife.

Mr. JAMES DE ROTHSCHILD spoke of the social problems caused by gold-mining developments in Rhodesia, Kenya, and Tanganyika which led to the emigration of thousands of people from Nyasaland. Native labour could be economized by organization within the industries and by improving conditions of life and employment.

Mr. CREECH JONES said anxiety had been caused by the issue of a recruiting licence for the purpose of bringing labour from Nyasaland to the Union of South Africa. Special experiments had been carried out to ascertain the susceptibility of tropical natives to heat-stroke. They had a greater resistance to it than the Union natives, and could therefore be profitably employed in the lower levels of the mine. The Labour Opposition opposed the drawing upon the colonies for this kind of labour. Conditions in the Rand were unnatural and there was a tremendous amount of vice in the compound. Already Nyasaland was being denuded, and in some districts at least 80 per cent. of the men who left the villages did not return again.

Mr. ORMESBY-GORE said it was desirable that the Government should take greater control than in the past of the migration of the Nyasaland "boys." The Nyasaland native was particularly independent, but if he went to the big mining areas he had to be looked after. He hoped to ratify the International Labour Convention on the recruitment of native labour. Experience of the migration of Nyasaland "boys" was so far satisfactory on the health side, and Mr. Creech Jones was out of date when he talked of the vicious life in the compounds. The improvement in the compound system of the mines in recent times had been remarkable.

NATIVE HEALTH IN KENYA

Sir ERNEST GRAHAM-LITTLE quoted a West African chief who had said that the natives of West Africa owed their retention of the land to the mosquito, which had checked the flow of white emigration into West Africa. In Kenya, on the other hand, the native reserves represented a small proportion of the total acreage, and the density of population in those reserves was calculated at 250 to the square mile, which exceeded the density of population in British India, and was accompanied by desperate poverty that was largely responsible for the health conditions. The Director of Medical Services in Kenya had told him it was impossible in most instances to collect a hut tax of 12s. 6d. per year, the whole income of a native family in Kenya being estimated by him at about £3 a year. In Nyasaland the position was even worse, and the resulting migration of 50 per cent. of the adult males broke up the tribal system and spread infection.

An important research was conducted in Kenya in 1926. The conditions of two neighbouring tribes in the native reserves was compared, and one tribe was found to be inferior to the other in height, weight, muscular strength, and in resistance to disease. The dietary of the inferior tribe was found to have weakened their resistance to disease: the members lived chiefly on agricultural products, while the diet of the other tribe was principally fresh meat and fresh food of every kind. A second investigation was made of the incidence of disease in certain parts of Kenya. A sample of some 650 individuals was taken, a quarter of whom were children. Anaemia was found in 570 out of the 650, (haemic) murmurs in 546, malnutrition in 425, yaws in 446, pyorrhoea in 406, malaria in some 300, tuberculosis in 159, and venereal disease in only 5. These figures disproved the assertion that venereal disease was the cause of so much ill-health in Africa. Of 436 individuals in that sample specially examined for worm infection 344 showed infection from hookworm. Each of the individuals examined could be described as an ambulant pathological museum. It was a grave indictment that Parliament allowed such a degree of preventable disease in any part of the world for which it was responsible.

Infantile mortality in many parts of Kenya was estimated at 40 to 50 per cent.; this was partly the result of the general incidence of disease. Some 95 per cent. of a large sample of children under 10 were found to be suffering from malaria, and there was a 75 per cent. incidence of hookworm. Yaws was practically universal. The wretched condition of the natives might not be due altogether to malnutrition. There were other causes as well. The physique was so wretched that a medical man called upon to select natives for carrying certain weights had to examine 1,000 before he could find fifty who were fit to undertake the task.

RESEARCH IN KENYA

Two medical observers living in Kenya contended that there was an anatomical and physiological basis for the condition of the natives. One of these observers, a specialist who had attained distinction in the subject of mental disease

and the relation of the capacity of the skull to the brain underneath, went out to Kenya and conducted an investigation on his own account. The results of the investigation were published in the medical press and in many of the newspapers in November, 1933. In January, 1934, the medical profession in East Africa, represented by the combined Branches of the British Medical Association in East Africa, discussed the investigations, and urged the Government of Kenya and the Home Government to prosecute a research. Investigation was also urged in influential medical quarters and the Press, but nothing was done, although the Colonial Secretary admitted the desirability of the research.

In May, 1936, the medical profession again urged prosecution of the same research. A startling thing happened. One of the doctors engaged in the research received an offer of promotion to leave Kenya. The consternation of the medical profession in Kenya was shown by the dispatch of a petition to the Governor protesting against the proposal to move this doctor. There were two reasons for this: the immediate cessation of the research, and the effect on the great laboratory in Nairobi. The Pim Report pointed out that this was the centre of research for the whole of Africa, and at a cost for the whole laboratory of under £16,000 a year it provided pathological data which would cost at the ordinary price over £20,000 a year. The doctor was reinstated, and was given a right salary and an improved status. Since then there had been another example of administrative harshness. Dr. H. L. Gordon, the senior doctor of the research team, learnt from the newspapers that he had been retired. He had been left without means after a long period of service, and the work of the team was destroyed by that removal.

MEDICAL ESTABLISHMENT ON THE GOLD COAST

Mr. SORENSEN said Dr. Selwyn Clark's report on the Medical Department of the Gold Coast for 1935 was disturbing regarding the deterioration of the physical well-being of the natives. That report was less reassuring than in recent years, a fact connected with the decline in the available medical staff even though the number of patients had increased. In 1929 ninety medical officers attended 249,476 patients, whereas in 1935 sixty-six medical officers attended 273,000 patients. For the treatment of leprosy there was a shortage of staff. Mr. Sorensen would like to hear some indication that investigation was going on into possible incidence of silicosis and tuberculosis on the Gold Coast.

Sir HENRY PAGE CROFT said the huts in Kenya of whose insanitary condition Sir E. Graham-Little had spoken were all in the native reserves; the Government attempted to leave the natives in the conditions of life in which they preferred to dwell. He begged the Committee not to press too far the idea that they could compel certain tribes to eat a form of diet which specialists in this country considered to be good for them. He had himself tried experiments in this matter with native employees in East Africa, and received weekly reports on the physical condition of those in his employ. It was in the interests of everyone engaged in productive work in Kenya to see that the natives were fit. Mr. PALING said experience had proved that natives from the Tropics employed on the Rand were subject to a very high death rate. A considerable number had pneumonia, and because of the high mortality the migration was stopped. Now recruiting had begun again. It was a dangerous experiment to renew. He hoped there was some real guarantee that the circumstances which existed previously had been altered.

Mr. ORMSBY-GORE said he would deal with the questions raised by Sir E. Graham-Little. He (Mr. Ormsby-Gore) had not been as impressed as was Sir Ernest with the scientific value of the research into brain capacity of certain natives, and although some doctors agreed with Sir Ernest a great many doctors agreed with him (Mr. Ormsby-Gore). Before he could authorize any expenditure for medical research, either of this or of any other character in Kenya or elsewhere, he must take advice from the Medical Research Council of this country, and that body did not advise this research. Dr. Gordon was never a Government medical officer. He went out to Kenya on is own after the age of 60. He was a well-known alienist who had specialized in particular branches of mental illness, and the Government of Kenya was glad to employ him as a local consultant in connexion with the asylum at Nairobi. When he reached the age of 70, which was far beyond the retiring age of most people in the Tropics, and had been in Kenya six or seven years, the Government concluded it was essential to have a whole-time medical consultant and a younger man, and they therefore dispensed with the services of Dr. Gordon. Mr. Ormsby-Gore said he was glad that Dr. Vint, a young and able consultant, had been able to carry on in Kenya. He had been offered a better post with higher pay in Mauritius, but there was a great wish that he should stay in Kenya, and he had been induced to stay there.

Sir E. Graham-Little had suggested it might be possible that brain deficiency was the cause of malaria and other diseases. That could not be so. Malnutrition might be one of the causes, but the causes of most of these tropical diseases were known. There was only one way to deal with malaria, and that was to kill the mosquitos. Yaws was a disease on which remarkable work was being done by the British medical staff all over Africa. The experimental migration of natives from Nyasaland to the Rand had been allowed because there had already been a successful migration of natives north of latitude 22. The results were now very different, and although there were some cases of pneumonia there were very few deaths. Until we had a full report no more natives would be allowed to go, but so far the reports were satisfactory, and he had no ground to believe there was any special danger to health. There would be a further opportunity of debating this vote.

The House divided, and the vote was approved by 141 to 89.

Certified Insane in Scottish Mental Institutions

On May 25 Mr. ROBERT GIBSON asked the Secretary of State for Scotland how many persons were detained in mental institutions in Scotland as certified lunatics on December 31 in the years 1930 to 1936.

Mr. ELLIOT, in reply, circulated the following table:

	1930	1931	1932	1933	1934	1935	1936
Numbers of persons detained as certified lunatics in mental institutions in Scotland at December 31 of each year	17,650	17,935	17,915	18,069	18,251	18,353	18,304
Numbers received into such institutions each year ..	3,061	3,009	2,800	2,987	2,732	2,760	2,583
Numbers who were received and who were married persons	1,100	1,147	1,093	1,098	988	1,039	962
Numbers who were discharged each year ..	1,396	1,262	1,285	1,314	1,186	1,221	1,217
Numbers who were discharged and who were married persons ..	588	535	558	570	529	509	504
(*a*) Married and had been detained :							
(1) for less than 3 years	547	490	520	520	485	460	459
(2) for 3 years and less than 5 years ..	17	22	22	19	22	23	18
(3) for 5 years and less than 10 years	15	14	10	24	16	15	22
(4) for 10 years and less than 15 years	5	5	4	5	3	7	3
(5) for over 15 years	4	4	2	2	3	4	2
(*b*) Unmarried (including widowed and divorced persons) and had been detained :							
(1) for less than 3 years	729	659	654	674	579	638	630
(2) for 3 years and less than 5 years ..	40	30	33	27	33	32	30
(3) for 5 years and less than 10 years	29	26	21	23	24	23	30
(4) for 10 years and less than 15 years	5	7	10	11	10	9	14
(5) for over 15 years	5	5	9	9	11	10	9

Tuberculosis in Wales

Sir KINGSLEY WOOD, replying on May 27 to Mr. James Griffiths, said that although the rate of mortality from tuber-

culosis in Wales was higher than in England and Wales as a whole there had been a substantial decline in the rate in Wales as well as in the rest of the country. This decline amounted to 38 per cent. on the figures for 1935 as compared with 1910. In Wales the arrangements for the treatment of tuberculosis were made by the Welsh National Memorial Association on behalf of the Welsh county and county borough councils. A survey of the services provided by the Association was being undertaken by one of the medical officers of the Welsh Board of Health. He awaited the results of this survey before considering what further measures were required.

On the same day (May 27) Mr. JAMES GRIFFITHS asked the President of the Board of Education whether, having regard to the high incidence of tuberculosis in Wales, the school medical officers of health in the Principality had made any reports on the large number of school buildings that were unsuitable and should be replaced, and on the fact that in the rural areas children have to walk long distances to school, and during inclement weather had no facilities for drying their clothes. Mr. OLIVER STANLEY replied that a few school medical officers had called attention to these matters in their reports, but the great majority had not done so. He knew the importance of improving or replacing unsatisfactory school buildings. Progress was continual in this respect. As regards provision of facilities for drying children's clothes and for providing a midday meal, attention had been called to these matters in the Board's pamphlet on elementary school buildings and in a circular issued last year. He hoped to secure a substantial extension of these facilities.

Marriage Bill

The remainder of the report stage of the Marriage Bill was taken in the House of Commons on May 28 and the third reading followed. This Bill is a private member's measure, but the Government provided the time for these stages. On the report stage Sir TERENCE O'CONNOR, Solicitor-General, explained an amendment previously proposed dealing with grounds of divorce. He said that under the Bill a party could not within five years of marriage ask for a divorce for adultery, but the party could go to the court and ask for a judicial separation on the grounds of adultery. The amendment was drawn to make it clear that in those circumstances, when the five years were up, the party might ask on the same grounds for a divorce. The amendment was accepted. The House accepted an amendment, moved by Mr. SPENS, providing that the Act should come into operation on January 1, 1938.

Mr. DE LA BERE moved that the Bill be read a third time. Sir ARNOLD WILSON, in seconding, said the marriage laws had been under consideration four times since 1912. Public opinion had developed steadily since then, and although the respect for marriage might have weakened among certain classes it had strengthened in others. A report recently presented to the House on maternity showed that of 26,000 illegitimate births registered less than half were first births. The remainder were the offspring of men and women living honourably together who were precluded by the laws from regularizing their union by marriage. Once the Bill became law he was confident there would be a steady reduction in the number of births registered as illegitimate.

Sir PATRICK HANNON moved the rejection of the Bill. He said the introduction of insanity as a ground for divorce had dangerous aspects. No one could define precisely the limits within which insanity existed. The Solicitor-General had helped the Committee in that respect, but nevertheless it was difficult to estimate, say, the extent to which a woman of nervous temperament was influenced by actions of her husband which might lead him to apply for divorce. Mr. LYONS said the additional grounds for divorce provided by the Bill where the respondent was incurably of unsound mind and had been continuously under care and treatment for at least five years immediately preceding the presentation of the petition were dangerous. They knew that many people did recover after five years' care and treatment. For a woman suffering from mild mental disorder to know that if she required care and treatment for five years she could be divorced would be likely to induce serious mental disease.

Sir WM. WAYLAND said a very small percentage of lunatics and people of unsound mind recovered after five years. Mr. LYONS said the word "lunatic" did not occur in the Bill. There was not a word in it about certification or about any technical classification. There was a great difference between an act committed by either husband or wife which was clearly a matrimonial offence and the visitation of a disease which nobody could prevent. Mr. H. STRAUSS said Clause 1 of the Bill, which forbids a divorce within five years of the marriage, introduced a provision which did not exist in the law of any other country. It would cause suffering, and the number of hasty marriages which would be prevented was infinitesimal.

Mr. A. P. HERBERT, replying to the debate, said the definition of cruelty in the Bill was one which had been accepted by the Ecclesiastical Courts for hundreds of years and did not include anything in the nature of mental cruelty.

The Bill was then read a third time by 190 to 37, and was sent to the House of Lords.

Admission of Alien Doctors

Mr. ROSTRON DUCKWORTH, on May 28, asked the present policy with regard to the admission into this country of foreign doctors, dentists, research workers, and students, etc.; the aggregate number permitted to settle here in the last two years; and what representations had been received from professional bodies in this country on the subject of this form of competition.

Mr. GEOFFREY LLOYD replied that the policy was to restrict closely the admission of foreign doctors and dentists who wished to set up in practice in this country after being admitted to the *Medical* and *Dentists Registers*. Since March, 1935, the rule had been not to permit foreigners to engage in medical practice in the United Kingdom save in the most exceptional circumstances. The same rule had been applied in the case of foreign dentists since February, 1936. No general figures of the numbers to whom permission to practise had been granted were available. The admission of refugee doctors and dentists from Germany had been the subject of representations from and discussion with the various professional bodies concerned, and separate figures had been kept of the numbers of refugee doctors and dentists to whom permission to set up in practice had been granted. They were 183 doctors and seventy-eight dentists, of whom the large majority, in the case of the doctors, had either been granted permission to practise or had commenced their studies for a British degree before March, 1935, and in the case of the dentists had been admitted to the *Dentists Register* before February, 1936. As regards research workers and students whose work did not involve employment in the service of a person or firm in this country, no obstacles were placed in the way of their admission provided their maintenance here was assured, but they were expected to leave on the completion of their research or study. If employment was involved they were not admitted unless in possession of a permit issued by the Minister of Labour to their respective employer in accordance with Article 1 (3) (*b*) of the Aliens Order, 1920.

Committee on Corporal Punishment

It has been decided that the Committee on Corporal Punishment shall inquire not only into the English but also into the Scottish law and practice. The Committee's terms of reference are:

"To consider the question of corporal punishment in the penal systems of England and Wales and of Scotland; to review the law and practice relating to the use of this method of punishment by juvenile courts, by other courts, and as a penalty for certain offences committed by prisoners; and to report what changes are necessary or desirable."

The Hon. Edward Cadogan has consented to act as chairman of the Committee, and the following have now accepted

invitations to serve on it: Lady Ampthill, Mrs. A. E. Astley, Professor J. L. Brierly, Mr. E. Ford Duncanson, Dr. Robert Hutchison, Sir William McKechnie, Mr. H. R. Tutt, and Mr. Cecil Whiteley, K.C. One other woman member will be announced soon.

Eradication of Diseases Among Cattle

The following is a statement on agricultural policy made to the House of Commons by Mr. W. S. Morrison on May 27:

"The Government proposes to initiate a large-scale and more comprehensive campaign for the eradication of animal diseases in Great Britain. Our object is to improve the health of our livestock and increase agricultural productivity by seeking to eliminate what is perhaps the worst of all forms of wastage and economic loss in agriculture. In the first instance efforts will mainly be directed to the eradication of diseases among cattle. The scheme will involve an additional charge on the Exchequer of about £600,000 per annum for the first four years. It will, however, involve centralization of public veterinary services, and as against the increased cost to the Exchequer the expenditure by local authorities will be reduced by about £170,000. Parliamentary authority will be required for these proposals. The Government is anxious, however, to lose no time in developing the existing schemes of control of disease, and accordingly I am arranging at once to amend the Attested Herds Scheme under the Milk Act, 1934, by providing additional assistance in England and Wales, as has already been done in Scotland, to owners of dairy stock who are desirous of eradicating tuberculosis from their herds. This revised scheme will become operative on June 1 next. The necessary legislation to give effect to these proposals will be introduced at the earliest possible moment."

It was subsequently explained that the whole of the inspection of livestock and diagnosis of scheduled diseases would be incorporated in the central veterinary service, but the other duties, including the work of the police, would be unaffected. The following would be transferred: duties under the Tuberculosis Order, 1925; routine veterinary inspection of dairy herds under the milk and dairies legislation; tuberculin tests under the Milk (Special Designations) Order; diagnostic inquiries into scheduled diseases.

Co-operation of Diseases of Animals Committees of local authorities, the police forces, the public health authorities with the central veterinary inspectorate would be essential.

Maternal Mortality Report

Sir KINGSLEY WOOD, on May 27, told Mr. Hepworth that he had already taken action on the principal recommendations contained in the report on an investigation into maternal mortality. He recalled that on May 7 he addressed a circular requesting all maternity and child welfare authorities in this country to take steps to extend and improve the services already available in their areas. Sir Kingsley added that he was in communication with the Medical Research Council on the questions recommended in the report for further research.

Trade Effluents

Sir KINGSLEY WOOD, in the House of Commons on May 27, moved the second reading of the Public Health (Drainage of Trade Premises) Bill. This Bill has already passed the House of Lords. Sir Kingsley said its object was to improve the purity of the streams and rivers of this country, and also to relieve traders of a troublesome condition. The problem was pressing because of the tendency for manufacturers to settle on rivers which had not been industrialized before, and because of the importance of conserving available sources of water supply, both domestic and industrial. The Joint Advisory Committee on River Pollution concluded in 1930 that local sanitary authorities should be under a general obligation to take and dispose of the trade effluent of their district, that the trader should have a right to discharge such effluents to the public sewers, and that there should be certain safeguards and conditions. This measure provided that local authorities, either by agreement with traders on individual applications or by means of the enforcement of the by-laws, should settle the terms on which effluents might be discharged into sewers. These by-laws must be approved by the Ministry of Health. Traders were given a right of appeal, and power was given to make exceptions to deal with particular cases. The Bill only dealt with the regulation of what might be passed through drains, as the drains themselves were regulated by the Public Health Act, 1936. Provisions were included for protection of authorities who were under an obligation to treat sewage from other local authorities' areas and from docks and harbour authorities.

Mr. SHORT said the Bill was an improvement on that introduced by Lord Gainford in the House of Lords last year which had failed to reach the Statute Book. The pollution of streams and rivers by trade effluents was general, and the measure was long overdue. Mr. GALLACHER said the Bill defined trade effluent as effluent with or without particles of matter, but he had in mind a coal pit which had dumped its rubbish into a harbour, and so caused pollution and desolation. Mr. MATHERS also spoke of coal dust going directly into streams from the settling ponds at collieries, and said this did immense harm to rivers, but did not seem to be dealt with by the Bill. Mr. DAVID ADAMS said the Tyne was really a large sewer, undoubtedly highly polluted, and yet no medical officer of health from the Tyneside area would state that the health of the community was in any degree affected by the fact.

Mr. R. S. HUDSON said he understood a separate Bill was needed for Scotland, and was under consideration by the Scottish Office. The discharge of coal dust was already an offence under an Act passed in 1876 for the prevention of pollution of rivers. He would investigate a complaint made by a member about pollution by deposit of night soil on a river bank.

The House agreed to the Bill without a division, and it was sent to a Standing Committee.

Drinking of Methylated Spirits in Scotland

In the House of Lords on June 1 Lord KINNAIRD moved the second reading of the Methylated Spirits (Scotland) Bill, which has passed the House of Commons. He said that for many years the drinking of methylated spirits in Scotland had reached dimensions which had caused grave anxiety, and the object of the Bill was to put a stop to the practice. He was informed by the largest manufacturer, who made 60 per cent. of all methylated spirits, that 9.5 per cent. of methylated spirits was wood alcohol. Professor Sydney Smith, Regius Professor of Forensic Medicine in the University of Edinburgh, had stated that it was much more toxic than ordinary alcohol, owing to the fact that it took much longer to destroy the tissues. One of the most disastrous of its effects was on the central nervous system. Medical officers of health, police surgeons, and others confirmed the statement that it sapped moral strength and led to greater moral depravity than did the drinking of ordinary beverages. Those who drank methylated spirits were in great danger of becoming blind and, if they persisted, in becoming mad.

Lord ASKWITH said that while he did not want to oppose the principle of the Bill in so far as it was concerned with stopping the drinking of methylated spirits, he saw nothing in the Bill to prevent a person buying four gallons in one place and four gallons more in at least another half a dozen places. When the Bill reached committee he would put down amendments to prevent overlapping and to protect the interests of the Pharmaceutical Society of Great Britain, for which an Act of Parliament was passed in 1933 and which was under the discipline of the Lord President of the Council. He did not know if the Lord President of the Council and the Statutory Committee had been consulted in regard to the Bill, which implied a double testing, and the taking away of power and authority given to the Pharmaceutical Society by the recent Act.

Lord ALNESS, supporting the second reading, said that the principle of the Bill was that, with the least possible inconvenience to the public, they should check and regulate the sale of this noxious drug. That was a sound principle.

The EARL OF MANSFIELD said that taxation had raised the price of ordinary spirits to such an extent that many people were unable to buy them and consequently sought refuge in some nefarious substitute. Some persons tried to drink methylated spirits diluted with water; others tried to disguise its taste by mixing it with cheap red wine, which, in itself, was a noxious drink, producing such mixtures as "Red Biddy," "Yellow Peril," and concoctions of other colours, the effects of which were very serious.

Lord STRATHCONA said that the Government's attitude was one of benevolent neutrality. It considered the Bill most desirable, and that it ought to go to Committee.

The Bill was then read a second time.

Expenditure on Tuberculosis in Scotland.—On May 25 Mr. WILSON asked the Secretary of State for Scotland what was the annual cost for the treatment of tuberculous, crippled, and orthopaedic cases. Mr. ELLIOT replied that local authorities in Scotland incurred a net expenditure of £640,670 on the treatment of tuberculosis in 1934–5, the latest year for which information was available. Orthopaedic and cripple cases were dealt with by local authorities under their tuberculosis, child welfare, and school health schemes, and a separate figure for this expenditure was not available.

Deficiency in R.A.M.C. Establishment.—On June 1, Mr. HORE-BELISHA, replying to a question, said that a deficiency of sixty-three regular Royal Army Medical Corps officers on the present authorized establishment was being made good by thirty-three temporary commissioned officers and a number of civilian medical practitioners. The number of candidates presenting themselves continued to improve.

School Dental Inspection.—On May 31 Mr. LINDSAY informed Mr. Lyons that during the year ended December 31, 1936, 3,463,948 children in public elementary schools in England and Wales were subjected to dental inspection under arrangements made by local education authorities. Of these, 2,425,299 children were found to require dental treatment and 1,536,627 were treated under arrangements made by local education authorities.

Notes in Brief

The total number of houses completed by private enterprise in England and Wales with State assistance from 1919 up to March 31, 1937, was 423,723. From 1919 up to March 31, 1936, local housing authorities in England and Wales completed 829,851 houses with State assistance, and during the year ended March 31, 1937, they completed a further 71,029 houses. The total amount of State subsidy paid in respect of the houses from 1919 up to March 31, 1937, was £178,715,463.

The number of houses completed in Scotland with State assistance from 1919 till March 31, 1937, was 215,537. The State subsidy paid up to that date amounted to £23,549,148.

Medical News

Founder's Day will be celebrated at Epsom College on Saturday, June 19. The second day of the cricket match The College *v.* The Old Boys will begin at 11 a.m.; there will be service in chapel for boys and parents at noon, an assault-at-arms at 2.15, and presentation of prizes by Sir Hugh Walpole at 3.30.

The annual general meeting of the London and Counties Medical Protection Society, Limited, will be held at Victory House, Leicester Square, W.C., on Wednesday, June 16, at 4 p.m.

The twenty-sixth Oxford Ophthalmological Congress will be held in Keble College from July 7 to 10. On the morning of July 8 a discussion on the "Problem of Myopia" will be opened by Mr. Bishop Harman and Mr. Arnold Sorsby. The Doyne Memorial Lecture by the late Dr. D. J. Wood of Capetown on "Night Blindness in Eye Disease—Suggestions and Speculations," will be read by his friend and colleague Dr. R. C. J. Meyer of Johannesburg. The full programme of the congress may be obtained from the honorary secretary and treasurer, Dr. F. A. Anderson, 12, St. John's Hill, Shrewsbury.

The twenty-fourth centenary of Hippocrates will be celebrated this summer at Cos, Athens, and Epidaurus by a cruise organized by the Latin Medical Union (Umfia). Further information can be obtained from Dr. Dartigues, Bureau de l'Umfia, 81, Rue de la Pompe, Paris 16e.

An International Congress for Short Waves in Physics, Biology, and Medicine will be held in Vienna from July 12 to 17. Further information can be obtained from the secretariat, Alserstrasse 4, Wien 9.

The sixteenth International Neurological Congress will be held in Paris from July 8 to 14, when the subject for discussion will be pain in neurology. Further information can be obtained from Dr. Crouzon, 70 bis Avenue de Jéna, Paris 16e.

The fiftieth Congress of the French Society of Ophthalmology will be held in Paris from June 28 to 30. Further information can be obtained from the general secretary, M. René Onfray, 6, Avenue de La Motte-Picquet, Paris 7e.

The postponed eleventh International Congress of Psychology will be held in Paris from July 25 to 31, with Professor Pierre Janet as honorary president, Professor Henri Piéron as president of the executive committee, and Professor I. Meyerson as general secretary. The headquarters of the congress are at the Laboratory of Psychology of the Sorbonne.

The issue of the *Wiener medizinische Wochenschrift* for May 22nd contains a history by Dr. I. Fischer of the Vienna Medical Society, founded in 1837.

The April issue of the *Bulletin de l'Office International d'Hygiène Publique* is devoted to typhus and ankylostomiasis.

Dr. Donald M. Johnson has been adopted by the Bewdley Liberal Association as candidate for the forthcoming Parliamentary by-election of a member for the Bewdley Division.

Mr. Alexander Maclean, in handing over to Lord Horder, chairman of the Empire Rheumatism Council, at a luncheon on May 26, a gift of 10,000 guineas to finance a rheumatism research unit, said that he regarded this campaign against rheumatism as the most urgent of the needs of to-day. Mr. Maclean promised a further £2,500 to the Empire Rheumatism Council, making his gift £13,000 in all. He marked Coronation year by distributing a total of £40,000 to medical charities.

On behalf of the Registrar-General for England and Wales a silver medal is being struck by the Royal Mint to commemorate the centenary of the births, deaths, and marriages registration service, which came into operation in 1837. The medal is to be issued to active or retired members of the department and service subscribing to the celebrations.

Dr. James Fenton, medical officer of health for the Royal Borough of Kensington, has been elected president of the Society of Medical Officers of Health for the session 1937–8. Dr. Fenton is present chairman of the Central Council for Health Education, and is a past chairman of the Royal Sanitary Institute.

Professors Bezançon, Carnot, Claude, and Gosset are among the eight French leaders of the medical profession who have been nominated "Professeurs de Classe Exceptionnelle"—a distinction which counts from October 1, 1937, and which qualifies them for remaining in office till the age of 70.

The Paris University and municipal authorities have come to terms with regard to the creation of a professorship in social medicine as from October 1, 1937. The incumbent of this chair will initiate medical students in their fifth year into certain elements of preventive medicine such as sickness insurance.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, W.C.1.

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone, unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs. Authors over-seas should indicate on MSS. if reprints are required, as proofs are not sent abroad.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the *Journal*, should be addressed to the Financial Secretary and Business Manager.

The TELEPHONE NUMBER of the British Medical Association and the *British Medical Journal* is EUSTON 2111.

The TELEGRAPHIC ADDRESSES are
EDITOR OF THE *BRITISH MEDICAL JOURNAL*, *Aitiology Westcent, London.*
FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westcent, London.*
MEDICAL SECRETARY, *Medisecra Westcent, London.*

The address of the B.M.A. Scottish Office is 7, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh;* telephone: 24361 Edinburgh), and of the Office of the Irish Free State Medical Union (I.M.A. and B.M.A.), 18, Kildare Street, Dublin (telegrams: *Bacillus, Dublin;* telephone 62550 Dublin).

QUERIES AND ANSWERS

Disfiguring Pigmentation

"M.B., C.M." writes: I have an elderly patient whose cheek is much disfigured by the presence of a fairly large pigmentary deposit of a deep brown colour, and she is naturally sensitive to its presence, as it attracts attention. Will any reader suggest a form of treatment for its obliteration?

Splitting Finger-nails

K. D. K. writes in reply to "Stumped" (*Journal*, May 29, p. 1144): Splitting finger-nails is a form of atrophy of the nails found in conditions in which there is venous stasis in the extremities, and in nervous diseases, chronic tuberculosis, nephritis, diabetes, and as a chemical effect—for example, after soaking the hands in soda water. For treatment a nightly application of balsam of peru, 50 per cent. in castor oil, to the cuticles stimulates the nail growth. Klander has had good results from a diet rich in sulphur, since the metabolism of sulphur seems to play a part in the development of nails. In the house I should advise protecting the nails with small pieces of adhesive plaster. The nails are best kept short by cutting rather than filing, as the use of a file often produces further splitting.

Oxaluria

Dr. VIOLET HASTINGS (Auckland, New Zealand), in reply to "Perplexed" (*Journal*, March 13, p. 593), writes: Dr. C. C. Higgins of the Cleveland Clinic, Cleveland, Ohio, U.S.A., is obtaining successful results in preventing and also in dissolving urinary calculi by diet. The treatment is a diet rich in vitamin A and the maintenance of the *p*H of the urine at the desired degree by the adjustment of acid and base-forming foods. Particulars of the treatment can be obtained from Dr. Higgins himself.

Income Tax

Professional Subscriptions

"SERVICE" inquires whether a deduction for professional subscriptions can be claimed (*a*) by a medical officer serving in one of the armed Forces, and (*b*) by an officer on retired pay employed in a whole-time appointment.

*** There is judicial authority for holding that such deductions are allowable under Schedule E—which is the schedule dealing with employment, including Crown service—*only* where the individual assessed is required by the terms of his appointment to belong to the society in question. This would seem to exclude "Service's" claim. The stringency of the rule was criticized in the report of the fairly recent Income Tax Codification Committee.

LETTERS, NOTES, ETC.

Friars' Balsam for Dressings

Dr. H. KNIGHTS RAYSON (Kirkwood, South Africa) writes: I read with interest the remarks of Dr. Charles Barber on the external use of iodine and his eulogy of friars' balsam (March 6, p. 540). I agree with him entirely, and although I at first used tinct. iodi. I soon gave it up and reverted to an old tried friend, tinct. benzoin co. I was ward clerk to Mr. Durham at Guy's, and noted the excellent results he obtained from its use as a dressing, for all he did after suturing the wound was to apply a strip of lint saturated with the drug. I could if space permitted give many illustrations of its usefulness, and my advice to the young practitioner is try it in different cases; if wounds are dirty when seen do not wash but apply it frequently and plentifully. The only trouble is it is painful on application.

Reducing by the Book

Surgeon Lieutenant D. P. GURD, R.N., writes: I have been interested to note in the *Journal*, and in many magazines, advertisements which display various types of belt and abdominal supports. The prescribing of these appliances for the correction of visceroptosis and herniae, or for a short period after operation, appears reasonable enough, but they are also advertised for persons of sedentary occupation as a substitute for exercise! It would appear to me that provided the abdominal musculature is of moderate development the use of such supports is contra-indicated and would, if adopted, make the muscles still more lazy. To lie supine with a heavy book on one's abdomen and to practise abdominal breathing in this position for five minutes each morning would appear to be within the capabilities of most people, however busy, and is quite effective in reducing most cases of premature girth.

The A.A. Irish Handbook

The 1937–8 A.A. Irish Handbook, which has been completely revised, contains a great deal of useful information for resident or visiting motorists. Details are given of inspected hotels and garages in the Irish Free State and Northern Ireland, and shipping charges to and from Great Britain are shown, together with particulars of steamship routes and times of sailing. A.A. services to members are fully described, and insurance information, lists of car parks in Dublin, Cork, and Belfast, and tables showing lighting-up times and amounts of motor taxation, are included, as well as summaries of the Irish Free State Road Traffic Act and motor law in Northern Ireland. Members of the Automobile Association visiting Ireland may obtain the handbook without charge on application to any A.A. office.

Gas Cooking in Hospital

A booklet, illustrated with examples of modern hospitals, has been published by the British Commercial Gas Association under the title "Gas Equipment for Hospital Kitchens." This can be obtained, post free, on application to the publishers at Gas Industry House, 1, Grosvenor Place, London, S.W.1. It contains much of value to those on the administrative side of hospitals, clinics, and nursing homes.

Medical Golf

The seventh spring meeting of the Sussex Medical and Dental Golfing Society was held on the links of the Mannings Heath Golf Club, Horsham, on Sunday, May 30, when twenty-six members were present. The morning round for the Rolls Hoare Cup was won by Dr. Craig with a net score of 69. Messrs. Ditch and Thwaites were runners up with a score of 72. The afternoon round, 4-ball against bogey, resulted in a tie between Messrs. Craig and A. A. Smith, with a score of 8 up. Messrs. Elliott, J. Thwaites, Anderson, and Wright were second with 7 up.

Disclaimer

Dr. VIVIAN METIVIER (Port-of-Spain, Trinidad, B.W.I.) writes: The announcement in the *Trinidad Diocesan Magazine* of May, 1937, which alludes to my work, and in particular to an operation performed by me on the wife of a clergyman, was in no way authorized or sanctioned by me. I knew nothing of it until a copy of the magazine was sent to my wife by a friend.